

WG4&WG5 Joint Meeting
iPLANTA Core Group meeting

FACOLTÀ DI SCIENZE AGRARIE E ALIMENTARI
UNIVERSITY OF MILAN
MILAN (Italy)

MINUTE

OCTOBER 18-20TH, 2017



WG4 and WG5 of the COST action iPLANTA organized a Joint Meeting on “Benefits and Costs associated with using RNAi technologies & Building our communication plan to reach all stakeholders”. The joint meeting lasted two and a half days from Wednesday 18th to the early afternoon of Friday 20th October, including the meeting of the Core Group of the action. For the meeting 27 experts were invited, of which four were not able to attend for last minute problems and one followed part of the meeting with a presentation via teleconference. The meeting was attended also by researchers of Italian research centers and researchers and PhD students of the Faculty of Agriculture of Milan University.

DAY 1 - WEDNESDAY 18TH

The WG4&5 JM was opened by the welcome and short introduction on the aims of iPLANTA Action and of meeting by Prof. Bruno Mezzetti, Chair of the Action, and Prof. Dario Frisio, Dean of the Faculty of Agriculture. With the goal of identifying priorities for defining RNAi products socio-economic impact and communication, 5 presentations introduced the organization of the action and the work started by the different WGs were presented.

The first presentation by Michel Ravelonandro, Vice Chair of WG1, introduced the main aspects of the RNAi technology. Advances on RNAi applications were introduced by Hely Haggman, Vice Chair of WG2. Updates on the activities started by WG3 on RNAi Biosafety issues were given by Salvatore Arpaia (WG3 Leader). Bruno Mezzetti (Chair of the Action), due to the absence of both Leader and Vice Leader of WG4, introduced the main aims of the socio-economic studies expected in the Memorandum of understanding of iPLANTA Action and evidenced the need to create a link with the other WGs for better defining a strategy of work for WG4. Finally, Hilde-Gunn Opsahl-Soterberg, WG5 Chair, introduced the main aims of the WG on communication techniques by underlining the need to modify risk perception on these products and discussed how to communicate the products of this new technology to different stakeholders by several means.

In conclusion to this session all agreed on the need to create a better integration among the different WGs.

The afternoon session continued with the invited lecture of Prof. Aaron M. Shew in teleconference from the Department of Agricultural Economics, University of Arkansas, Fayetteville, USA. In his presentation, Prof. Shew underlined how poor the human perception on biotechnology is. However, 42% of consumers would give a higher valuation of GMO food and agree on their use if achieving reduced pesticide use (37%) and/or reaching increased yield (22%). The new breeding techniques have to be explained to consumers and rules based on risk and benefits of the products should be defined. The large spectrum of applications of RNAi technology has to be explored and communicated. Results from a survey on public acceptance of hypothetical products produced by topical RNAi spray vs. GMO were presented. The international survey showed a significant higher consumer willingness to pay more for an RNAi product than a GMO product. This work showed the importance to study new concrete products (eg. RNAi artichoke) and to compare transgenic RNAi vs topical RNAi.

DAY 2 – THURSDAY 19TH

The first session was dedicated to the introduction of the socioeconomic issues related to plant biotechnologies and needs when products from new technologies, such as RNAi products, are introduced.

The introductory lecture of Joost Dessein, on the GMO debate in EU from a social science perspective evidenced the importance to manage the problems related to GMO acceptance, by starting from the definition of the technology and of the capacity to control the technology. In the case of GMOs, the label does not inform the consumer of what there is beyond the products and the benefits deriving from the improved cultivation practices. The debate should be enlarged on how the EU society/agriculture is organized today and not limited to the GM debate. The debate on natural science must be enlarged. The design of a new crop is a multi-actor process, including the authorization and the introduction to the contest, including a more constructive and balanced sociological and political studies.

Elisa De Marchi presented some preliminary results of research focused on consumer acceptance of cisgenic food through a choice experiment (CE) involving apples. In detail, the CE is based on experimentally designed apples characterized by the following attributes: price, brand, production method (conventional/cisgenic) and country of origin. The results of this study outlined the presence of a significant percentage of consumers who did not reject the technology per se, thus opening the way to a potential acceptance of cisgenic products.

Vera Ventura presented an analysis of NBTs patent data. Results outlined that this new set of technologies are quite probably going to depict a new scenario in the agbiotech sector. In this sense, NBTs are not an innovation only in technological terms, and the innovative features they present have the potential to reshape the global socio-economic impact of plant genetic improvement. The main points of novelty are: their boost in terms of patent application in recent years, a greater variety of traits when compared to GM technology and the dominance of public research. Moreover, they are new for the emerging role of Asian Economies (China, Korea, Japan). In summary, the points of strength characterizing NBTs lead to them being considered as one of the most suitable strategies to provide solutions to achieve the challenges of sustainable production in the modern age. Nevertheless a comprehensive legal framework in which, at European Union level especially, these new techniques will be included is still missing. Thus, the presentation concluded introducing the question: will they be new also in terms of reduced political constraints?

Edoardo Ferri, from RPP EU Agency, underlined the importance to develop an effective communication to policy makers around independent international research dealing with innovation and sustainable agriculture, this as an essential step to prepare acceptance of the value of RNAi technology amongst EU stakeholders.

The socioeconomic session terminated with two presentations from stakeholders demonstrating the need for new genetic solutions for improving the sustainability and quality of important crops for the EU market.

The afternoon session started with the lecture by Jo Røislien on the art of communicating complex topics. He demonstrated the importance to identify clear and immediate messages to communicate complicated and complex concepts. The case of GMO is not only a problem of communicating complex concepts but also of a consolidated negative perception from the public opinion. He visualized the curse of wisdom, by illustrating how we adapt to heights of children when communicating, while when communicating to adults our height assumes we have the same reference background and competence. Next he covered new strategies to speak about biotechnology and win in the real world, would need to be to sell the stories as something else. One example would be to

talk about food to attract interest, and indirectly feed the public information about technologies, agricultural practices and food quality as well as important health issues.

Vera Ventura presented the results of two studies focusing on the analysis of the role of information on public perception of new technologies, starting from the assumption that GMOs are frequently described by media as unnatural or at least dangerous, thus contributing to shape their negative public perception. The first paper analysed the exposure of the Italian population to scary GMO-related images in the web. The second paper aimed to investigate if naming a technology in different ways can influence its media framing: the main features of both the visual and verbal communication and the role of different information sources (i.e. newspapers, institutional, scientific sites) have been evaluated and results confirmed the media bias in GMO information and reveal that GM technology is differently framed depending on the keyword used.

Oystein an agricultural magazine journalist, talked about farmer perceptions and how he as a farmer also had been sceptical about GM technologies for quite a long time until he learned more about them. He also reflected on how farmers easily adopt to new methods related to machinery.

The presentation H.G. Opsahl Sorteberg complimented the more general one given the day before, focusing on the actions needed to define stakeholders, the selection of messages to be communicated on different platforms, and methods to use to reach all groups such as talks, participation in meetings, Facebook platforms (open to all in addition to our established internal one open to members only), and book writing at the end of our period. An important comment from the other participants was the need to name the open Facebook page something else than RNAi as not many know what it means. She also said we should encourage members to recognize iPLANTA in their acknowledgements when publishing works related to topics covered by the action.

The objective of the Burgos presentation was to propose a scientific communication strategy specifically focused on RNAi with the aim of producing as much visibility as possible of the research work developed by the COST – iPLANTA network.

Two presentations expected for the communication session were cancelled because the invited experts were not able to attend the conference.

The afternoon program terminated with the presentation from Jorge Paiva introducing the program of Short Term Scientific Missions (STSMs) started by the iPLANTA action to develop a network of skills and competences in RNAi.

DAY 3 – FRIDAY 20TH

The session of Friday morning was entirely dedicated to a joint discussion for defining IPLANTA strategies to study socio-economic impacts and define a strategy to communicate benefits of RNAi Technology. The session involved by the following reduced number of experts: Bruno Mezzetti, Jeremy Sweet, Dario Frisio, Vera Ventura, Edoardo Ferri, Kit Greenop, Hely Häggman, Michel Ravelonandro, Salvatore Arpaia, Mirco Montefiori, Jorge Paiva and Hilde-Gunn Opsahl-Sorteberg.

From the discussion emerged the following priorities to be considered in the future activities of the 2 WGs:

1. Focus on consumer science studies and develop a framework of existing technology, starting from the study already available on RNAi patents and integrate the knowledge from the scientific results to their socioeconomic impacts. A better definition of the field of work is needed by identifying at least some of the more interesting case studies.
2. Define a strategy to improve market knowledge of the new products of the technology, this by involving stakeholders from agriculture and food industry and the consumer.
3. Start with a study on scientists' perceptions of the technology and try to identify the attitude and coherence in their acceptance and communication. A common position and message to explain science related to the technology has to be found.
4. A clear definition of the different potential applications for all NBTs should be made available, by clearly describing the power of gene editing for specific applications and the role of RNAi in achieving new results thanks to new knowledge of plant cross talk.
5. Identify the pipeline of products from NBT applications, including RNAi to prepare a 'basket of products' to be studied in terms of socioeconomic impacts and communication to the consumer.
6. Identify the different steps to be taken in consideration in the definition of a new biotech product, by identifying the most appropriate technology to be used, the preparation of the proper genetic tools, the methods to be used, the definition of the risk and benefit assessment, the study of the final product and the definition of a communication plan (not just marketing).
7. Prepare a document to propose to stakeholders and European parliament.
8. Organize an event at the EU parliament to report on the project
9. Produce new communication tools to be used in the dissemination plan e.g. New podcasts prepared with a story telling approach.
10. Discuss the most appropriate risk assessment approaches for this new technology.

Taking in consideration these priorities the discussion continued by identifying the activities to be carried out by the different WGs in order to implement the socioeconomic studies and communication plan.

1. WG1&2 should work mostly on the definition of the different potential applications all NBT now available (Priority 4) and clearly identify the capacity offered by RNAi in solving important problems in EU agricultural systems. Data should be provided to implement the framework of the existing technologies (priority 1) and to be used for the socioeconomic studies (WG4) and communication plan (WG5).
2. WG3 activities should address the implementation of knowledge on the risk factors that can be associated with the different kinds of RNAi products and identify and propose the most appropriate approaches for risk assessment and possibly develop cost analyses of the risk assessment for such new products. Case studies proposed by WG1&2 should be taken in consideration. Inputs from WG1&2 experts on the design of new RNAi products with reduced potential risk should be provided and then transferred to WG4&5 experts for a better definition of socioeconomic studies and communication plan.
3. Activities of WG4 should interact with all WGs in applying consumer science to the study of the new RNAi products (priority 1); in defining a strategy to improve market knowledge of RNAi products; prepare a survey to identify the perception and methods of communication

adopted by the scientific community for NBT and RNAi technology. Colleagues from Milan university will prepare a survey to be delivered to the 150 experts from 31 countries already joining the iPLANTA action. Preliminary data will be presented during the 2nd iPlanta conference in Poznan, February 2018 (priority 3). In collaboration with WG1&2, analyse the different potential of the NBTs and identify a possible ‘basket of products’ almost ready for commercial diffusion to be analysed for their potential socioeconomic impact (priority 5).

4. The plan of activities for **WG5** was also discussed. Being fundamental the science base communication approach, priority was given to the definition of a science communication plan based on the possibility to coordinate the publication of scientific papers and review, following the open questions addressed by Hilde-Gunn Sorteberg and plan presented by Lorenzo Burgos, to be assisted by Ewen Mullins. The involvement of SMEs is also important and in order to promote their participation, it was proposed to create a network of SMEs representatives to be coordinated by Mirko Montefiori (NewPlant) and supported by representative of growers associations (Deborah Piovan) other SMEs representatives.
5. Science communication remains the most important tool for defining a new strategy for communicating the potential of new biotechnological products. Such competences should be addressed to identify the unique message to be used to identify and transfer knowledge and products derived from the application of RNAi technology.
6. Develop a dissemination plan for the new unique message, starting with the preparation of a document to be presented with a special event at the EU Parliament organized with the assistance of Dr. Ferry and Greenop of RPP EU Agency. This event should be organized at different levels, starting with the preparation of the message and event, then the event organization at the EU Parliament with the involvement of stakeholders, legislators, DG research, and the follow up to collect the feedback and continue in the dissemination of the message. Two events can be planned, the intermediate in 2018 and the final in 2020.
7. Use competences of different experts on communication, eg. Jo Roislien (Norwegian University of Science and Technology), to develop communication materials including podcasts prepared by using materials produced by different WGs and described with the simple approach of the ‘story telling’.
8. Start planning the organization of demonstration events to show to the public the NBT/RNAi ‘basket of products’ that can be available and the potential benefits deriving from their use.
9. Use of all these new tools should be used for simplified education program on biotechnology, to better define the terminology, align stakeholders in their potential use, promote the starting of new founded research program, organize the future legislation on NBTs.

The WGs JM ended at 1.00 pm and after continued the iPLANTA Core Group meeting aimed to identify the critical issues emerging during the first period of the action, to identify possible solutions and have a preliminary discussion on the future plans.

- 1) Critical issues. The Action Chair introduced as first critical issue the problem to have a higher support from the WG leaders in the planning and organization of the activities. After a short discussion, there was a proposal to identify other experts that can be involved together with the existing L and VL in the management of the WG, this by identifying also their specific tasks. Therefore, the following proposal for improving efficacy of the WGs management is to be discussed at the next MC meeting:

WG1 – support the actual management with the identification of a second WG Leader with other specific competences on RNAi technologies. Attila Molnar can be a good candidate.

WG2 - support the actual management with the identification of a second WG Leader with other specific competences on RNAi applications. It can be useful to identify an expert working on plant – fungi interaction.

WG3 - support the actual management with the identification of a second WG vice - Leader with other specific competences on RNAi biosafety. During the meeting emerged the need to include also aspects related to the food safety issue, if available Gijs Kleter from WUR could bring a good contribution.

WG4 – the actual management needs a support to cover the different tasks expected for this WG. During the meeting emerged the availability of the group in Milan (Prof. Frisio and Dr. Ventura) to contribute in the development of some of WG4 tasks. The more direct involvement of Dr. Ventura could be seen of interest also because of the need to increase the involvement of ECIs in the management of the actions. Another important contribution on the sociological aspects could be given by Joost Dessein (ILVO, BE). Mirko Montefiori offered his availability to collaborate for the creation of a network of EU SMEs with an interest on RNAi technology.

WG5 – improve the actual management with the identification of other WG Vice Leader with other specific competences on RNAi communication. Lorenzo Burgos offered his availability to coordinate the scientific dissemination plan of the action together with the chairs of WG5. Kit Greenop and Edoardo Ferri offered their availability to coordinate dissemination events at EU level and promoting the involvement stakeholders.

The involvement of these other experts in WGs management will be discussed during the next MC meeting.

- 2) STSMs. Jorge Paiva presented the STSMs applications received for the second call, 5 in total, after an evaluation all were considered appropriate and were accepted. Only in one case, the budget requested was considered too high for the type of stage and it was decided to approve it only if the applicants accept to reduce the budget.

Considering the availability of total budget for GP2, the Chair proposed to reopen the call of application for STSMs to be held from January to March 2018. This proposal was accepted by the CG.

2nd IPLANTA Conference. The Chair and Jorge Paiva (local organizer) confirmed that the 2nd iPLANTA conference will be held in Poznan next February, 14-16, 2018. The Chair requested to the WG Leaders to propose aims, themes and structure of the conference. From the discussion were defined aims and themes, in line with the outcome of the previous iPLANTA activities, and proposed 2 invited lectures from USA: a) **Andrzej Wierzbicki**, Department of Molecular, Cellular and Developmental Biology, University of Michigan; b) **Hailin Jin** (University California, Riverside). As a preliminary proposal were identified 8 sessions, each including 1 invited lecture (30 min) and 4 oral presentations (15 min each), 3 dedicated to RNAi technology, 2 to RNAi applications, 1 to stakeholders and consumers, 1 to RNAi biosafety issues and 1 to socio-economic impacts and communication. More parallel sessions will be also included depending to the number of abstracts that will be received. Authors of selected abstracts (oral and posters) will be invited on COST iPLANTA budget. The deadline for abstract submission was decided for December 10th, 2017. The conference will be open to all participants.

The Core Group meeting ended at 3.00 pm.