

iPLANTA COST Action CA15223

WG4 meeting on

“Benefits and Cost associated with using RNAi technologies”

OCTOBER 18-19TH, 2017

WG5 meeting on

“Building iPLANTA’s communication plan to reach Scientist,
Industry, Public and other Stakeholders”

OCTOBER 19-20TH, 2017

BOOK OF ABSTRACT

MILAN UNIVERSITY, FACOLTÀ DI SCIENZE AGRARIE E ALIMENTARI

MILAN (Italy)



iPLANTA WG4/WG5 JOINT MEETING - AIMS AND THEMES

WG4 and WG5 of the COST action iPLANTA organizes a workshop on “Benefits and Costs associated with using RNAi technologies & Building our communication plan to reach all stakeholders”. The joint meeting will last two and a half days. The goal of the workshop associated with building the communication plan is to have a few selected presentations on socio-economic impacts and communication strategies and thorough discussions to define stakeholders, communication strategies, responsibilities, and deadlines to set the plan to guarantee maximum output of our action.

The workshop will have the following themes:

1. INTRODUCTION – Short **presentations from each WG** with emphasis on what to be communicated from each WG and a **list of their main stakeholders** to be reached.
2. What RNAi products are already available on the EU and other markets?
3. What are the expected benefits-and-costs of those products?
4. **PESTEL** (Political, Economic, Social, Technological, Environmental, Legal) analyses to use when building the SWOT matrix, and **SWOT** (Strengths, Weaknesses, Opportunities, Threats) input from each WG to construct a matrix to direct our communication strategies.
5. Deciding on **types of communication** (scientific, technical, public) to be used, who should be responsible to carry them out, and which time frames and deadlines they should have.

The workshop contributes to the following research objectives of the iPLANTA Action:

- Disseminate available information on plant RNAi and on RNAi systems in pests and pathogens of crop plants;
- Organize a network of scientists to achieve scientific understanding of RNAi mechanisms and bringing the other WGs closer together to the joint effort of communicating all the results from iPLANTA efficiently.

The workshop contributes to the following capacity building objectives of the iPlanta Action:

- Develop a socio-economic platform to consider the implications of this new technology in EU or international context and the appropriate institutional arrangements.
- Promote collaboration among European interested parties and stakeholders, and with interested parties outside Europe.
- Encourage the development of new relevant research consortia and programmes within the EU.
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- Encourage the development of new relevant research consortia and programmes within the EU.
- The workshop in particular will contribute to achieving the deliverables and milestones of WG4 and 5 as outlined in the proposal, in particular to build the actions for socio-economical studies and communication strategy.

INTRODUCTION TO IPLANTA NETWORK - CHAIRPERSONS: Bruno Mezzetti, Jeremy

Sweet

AUTHORS	ORAL PRESENTATION	
GUY SMAGGHE, MICHEL RAVELONANDRO	WG1 RNAi TECHNOLOGY	20 min
HUW JONES, HELY HAGGMAN	WG2 APPLICATION OF RNAi TECHNOLOGY IN GM	20 min
SALVATORE ARPAIA, ANTJE DIETZ-PFEILSTETTER	WG3 SPECIFIC BIOSAFETY ISSUES ASSOCIATED WITH RNAi	20 min
JUSTUS WESSELER, KONSTANTINOS KARANTININIS	WG4 SOCIO-ECONOMIC ISSUES	20 min
HILDE-GUNN OPSAHL- SORTEBERG, MATINA TSALAVOUTA	WG5 COMMUNICATION PLATFORM ON PLANT RNAi	20 min

DAY ONE, WENSDAY 18TH

Open Section 2 Invited lecture – Teleconference with Department of Agricultural Economics, University of Arkansas, Fayetteville, USA

DEMAND-SIDE ANALYSIS OF THE VIABILITY OF TOPICAL RNAI INSECTICIDE IN FOOD PRODUCTION

AARON M. SHEW, L. LANIER NALLEY, DIANA M. DANFORTH, RODOLFO M. NAYGA, JR., BRUCE L. DIXON

Department of Agricultural Economics, University of Arkansas, Fayetteville, AR – USA

Biotechnology is one of humanity's greatest assets in minimizing food insecurity and meeting global food demand by 2050. However, due to negative consumer perceptions of Genetically Modified Organisms (GMOs) and associated market impacts, agricultural companies are exploring biotechnologies that do not require the permanent introduction of foreign DNA into food crops. One prospective technology uses RNA interference (RNAi) as a topical crop spray to control target pests. Topical RNAi selectively silences the expression of a specific gene within the target pest and causes it to die. We analyzed consumers' valuation and acceptance of topical RNAi in food production because consumer demand could have strong implications for the commercial viability of topical RNAi. In a multi-country survey, we elicited consumers' valuation of rice produced with GMO (Bt) and topical RNAi technologies, respectively. A majority of respondents in all countries would consume rice with topical RNAi in production, while less would consume GMO Bt rice ($p < 0.05$). Still, the RNAi rice required a discount, though again less of a discount compared to Bt rice ($p < 0.05$). Thus, consumers remain skeptical of new biotechnologies compared to conventional production, but they may prefer topical RNAi in over transgenic biotechnologies.

DAY 2- THURSDAY 19TH, OPEN SESSION 1: RNAI SOCIO-ECONOMIC ISSUES

**‘THE GM-DEBATE IS NOT A GM-DEBATE’.
REFLECTIONS ON THE GM-DEBATE IN EUROPE FROM A SOCIAL SCIENCES
PERSPECTIVE.**

JOOST DESSEIN^{1,2}

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²Ghent University, Department of Agricultural Economics, Coupure Links 653, 9000 Ghent, Belgium

GM-debate, Europe, mediation theory

Large parts of the GM-debate about GM crop applications within EU can be understood as an attempt to debate how we have organised EU society today, rather than a mere critique on GM-technology as such. To substantiate this argument, this contribution will refer to Verbeek's mediation theory (Verbeek 2011, Inghelbrecht et al. 2017) and illustrate how ethical concerns about agricultural practices have co-evolved with the technological development of GM crops. It will discuss how technology and human beings relate. Is technology merely instrumental (the externalist view)? Or does technology actively shape human behavior and interpretation? And does the mediation between technology and human beings unveil the real meaning and significance of technology, in real practices?

From this perspective, the essence of the public debate on GM crops in the EU goes beyond the portrayed dichotomous Yes/No framing (in which both proponents and opponents are trapped), and is an attempt to discuss how EU agriculture is, could and should be organised. It shifts the question from a technocratic assessment of the (economic) gains and losses of a technology, towards the fundamentally political question of how technology applications help to shape society. A perspective of technological mediation can therefore contribute to re-politicising technology and technological design.

The presentation will use illustrations from GM-controversies at Member State level (Belgium) and at EU level.

references

Inghelbrecht, L., Goeminne, G., Van Huylenbroeck, G. and J. Dessein. (2016) When technology is more than instrumental: How ethical concerns in EU agriculture co-evolve with the development of GM crops. *Agriculture and Human Values* 3 (33),

Verbeek, P.P. 2011. *Moralizing technology: Understanding and designing the morality of things*. Chicago/London: University of Chicago Press

RNAi SOCIO-ECONOMIC ISSUES (WG4) CHAIRPERSONS DARIO FRISIO

AUTHORS	ORAL PRESENTATION	
ELISA DE MARCHI	CONSUMER ACCEPTANCE OF CISGENIC FOOD: A CONSUMER SEGMENTATION	30 min
VERA VENTURA, DARIO G. FRISIO	THE ECONOMICS OF NBTS: ELEMENTS OF NOVELTY	30 min
EDOARDO FERRI, KIT GREENOP	GENE SILENCING AND RNAI PERSPECTIVES OF DIALOGUE WITH EU POLICY MAKERS	30 min
<i>Demand from Stakeholders</i>		
DEBORAH PIOVAN, MARCO PASTI	CASE STUDIES FROM SEED INDUSTRY	15 min
MIRCO MONTEFIORI	CASE STUDIES FROM HORTICULTURAL INDUSTRY	15 min
LUCA CASOLI	CASE STUDIES FROM GRAPE INDUSTRY	15 min

Open Session 2, COMMUNICATION ON PLANT RNAi

THE ART OF COMMUNICATIONG COMPLEX TOPICS

JO ROISLIEN^{1,2,3}

¹Department of Mathematical Sciences, University of Science and Technology, Norway.

²Faculty of Health Sciences, University of Stavanger, Norway.

³Bulldozer Film, Norway.

Science communication, film, TV, mass media.

Communicating science can be difficult, but it can also be taught. Based on personal experience with writing and hosting several successful large scale TV series in Norway, this talk will stress the importance of simplicity and novelty, as well as cultural and visual competence, when aiming to reach beyond the inner circle of the highly interested. The talk will include hands on examples from challenges in explaining certain topics on TV and film, and how these were solved. The strategy has resulted in several short films and science TV shows on seemingly impossible topics like mathematics, experimental physics and biotechnology, that have outperformed Champions League and Idol in terms of viewer ratings.

EXPLORING THE FRAMING EFFECT OF NAME: THE CASE OF PLANT BIOTECHNOLOGIES

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¹Dipartimento di Scienze E Politiche Ambientali, Università degli Studi di Milano

²Dipartimento di Economia, Management e Metodi Quantitativi, Università degli Studi di Milano

GMO, communication, transgenic, public acceptance, correspondence analysis

Genetically Modified Organisms still represent one of the most controversial “science and society” issue: low public acceptance is a strong barrier against the diffusion of this technology in the food sector, and many scientists include within the cause of this skepticism a negative media framing: GMOs are frequently described by media as unnatural or at least dangerous, thus contributing to shape their negative public perception (Herring, 2008; Terpstra et al., 2014; Marks et al., 2007; Flipse and Osseweijer, 2013). Nevertheless, if framing analysis studies are normally focused on the way a technology is presented, the present study argues that the framing effect starts from the name of the technology itself. In this context, this paper aims at gaining insights on the framing of GMOs and, more precisely, to investigate if naming a technology in different ways can influence its media framing. Using the Italian Web as case study, three sets of images have been collected through Google search using different keywords, namely “GMO”, “Transgenic plant” and “Cisgenic” as different ways to refer to plant genetic engineering. Then 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 through Multiple Correspondence Analysis maps. Results confirm the media bias in GMO information and reveal that GM technology is differently framed depending on the keyword used. Findings can have strong implications for the successful communication of the new wave of breeding techniques (including RNAi technologies) in development in recent years.

Engaging the GMO-debate

Øystein Heggdal

Norwegian University of life sciences, Bachelor in Environment and natural resources, Journalism at Norway's creative collage. Tun Media Norsk Landbruk

Communication, social media and stakeholders

The European GMO-debate has been a 20 years long train wreck in science communication. People has based entire careers on being anti-GMO, we have research institutions who sole purpose is to massage statistical insignificant research-data to become the GMO-ogre in some old Norwegian folk tale, and the wider audience are not even questioning their own views. Being anti-GMO is just being the right thing. My talk will be about how a small comment on a Norwegian blog made me revisit all my inherited views on biotechnology in agriculture. I will talk about how to communicate with the farming community, being a farmer myself I know how conservative we are, but also how pragmatic we can be.

I will also talk about the effectiveness of social media and facebook-groups when you are researching for columns writing for newspapers. We have quite a tight facebook-group with everything from farmers and agronomists to biotech professors and biology scholars in it. For me communicating on a complex subject like bitech the group has been priceless. Say whatever you want about the anti-GMO movement, but they have been extremely well organized. I think it is time to step up the game and get the science communication organized as well.

And of course, it is not all about winning the minds of people, we also need to win the hearts. There is an urgent need to reframe the debate and tell people a new story about how we have been, and will be able to, use biotech in agriculture for a food production-system which is kinder on the planet.

STRATEGIC COMMUNICATIONS FOR RESEARCH AND IMPACT: WHY AND HOW

MATINA TSALAVOUTA

¹External Relations, Marketing and Communications, University of Liverpool, Liverpool L69 7ZX

Strategic communications, engagement, communications plans

Engagement in dialogue about scientific innovation has a strong potential to enable the delivery of impact of the research activity and support the development of solutions for the relevant end users and society as whole. Often among stakeholders there are different views, perceptions and understanding of the value of new technologies such as genetic modification (GM) and what it can deliver for farmers and consumers. Defining and implementing an effective communication strategy is key to ensuring public and stakeholder perceptions about the impact of novel plant breeding technologies are addressed in a transparent and coherent manner. The development of a communications strategy in order to be effective needs to be aligned and support the overall project objectives in any given situation and the stakeholders need to be identified and prioritised so that both the communications and overall project/business objectives can be achieved. Thus, the identification and definition of communications objectives as well the stakeholder mapping requires input and discussion of all involved in a project and dialogue during the strategy development stage. Once these key elements of the strategy have been developed then an implementation plan can follow that essentially outlines key actions and communications deliverables with targeted and nuanced messages for each stakeholder group. Having a strategy and a communications plan enables the effective, efficient and proactive engagement with all concerned in order to achieve the project objectives, impact through the research activity and benefit users and consumers in society of technological advances. Examples of how such strategies have been developed and what have delivered at institutional and project level will be presented.

DISSEMINATION ACTIVITIES TO BE OUTLINED FOR IPLANTA

H-G, OPSAHL-SORTEBERG¹

¹Department of Plant Science, Faculty of Biosciences, Norwegian University of Life Sciences, Norway.

Dissemination, stakeholders, Web based platforms like Facebook for the public?

Dissemination activities within iPLANTA are secured by a dedicated working group, and intended to strengthen the outcome of this COST action, it's research and strengthen the field by facilitating the dissemination of results.

First we should define different stackholder groups, and next which dissemination activities we will perform to reach them, timing of them, and responsibilities.

Examples of activities to be discussed and possibly other added raised under the discussion are:

1. iPLANTA participation at meetings and larger conferences; natinally and internationally, scientific and more applied meetings
2. Publications: leaflets, posters, iPLANTA corner in a poster session, books, exhibition booth or stand at a conference
3. STSM should demand an dissemination product like an abstract to be posted at iPLANTA website and our open FB page
4. Facebook pages, one internal for members only and an open to all interested partners
5. iPLANTA book
6. Scientific papers, where all members of the iPLANTA action should acknowledge the COST action when publishing within the topic of our action.

I will present this as an intorduction to our working group meeting of general interest to the whole iPLANTA action, and illustrate it with different examples of Facebook pages, their activities and the people they reach.

COMMUNICATING TO ADDRESS PERCEPTIONS AROUND PLANT BREEDING TECHNOLOGIES: WHAT LESSONS CAN BE LEARNT FROM PREVIOUS INITIATIVES TO ASSIST IPLANTA'S COMMUNICATION PLAN

E. MULLINS¹

¹Dept. Crop Science, Oak Park, Carlow, Ireland (ewen.mullins@teagasc.ie)

Risk description, GM potato,

Defining and implementing an effective communication strategy is key to ensuring public and stakeholder perceptions about the impact of novel plant breeding technologies are addressed in a transparent and coherent manner. As part the EU funded 'AMIGA' (Assessing and Monitoring the Impact of GM crops on Agroecosystems, 2012-2016) project, we were tasked with completing an agronomic and environmental assessment of a potato line, previously cisgenically engineered (www.DuRPh.nl) to resist the late blight pathogen *Phytophthora infestans*. This was the first field-based GM study completed in Ireland in almost 20 years and hence generated significant public interest. In response, we implemented a communication strategy that ran in tandem with the active research programme, with over 82 'knowledge transfer' events completed, across a range of forums and media outlets. As such we hosted open days, participated in stakeholder workshops and public debates and seminars which were attended by > 5000 people, over the lifetime of the study. Being able to deliver scientific fact in a non-scientific language was critical to ensure engagement through all events and providing context to answer the question 'why is the study necessary?' was imperative. By framing the discussion in an objective, impartial way, we ensured we answered every query that was made, accepted invitations received and attended all relevant events, irrespective of event bias, time organised or day held. The communication strategy implemented was not about trying to convince that one system is the sole solution but rather the focus was on educating and providing answers so that participants decide for themselves, based on a position of information that is grounded in sound science.

PROPOSAL FOR A SCIENCE DISEMINATION WITHIN THE IPLANTA ACTION COST

LORENZO BURGOS

Grupo de Biotecnología de Frutales. Departamento de Mejora. CEBAS-CSIC. Campus Universitario de Espinardo, Edif. 25, 30100 Murcia, Spain

Databases, Reports, Reviews, Training schools, Videos,

The iPlanta COST action needs to develop a scientific communication strategy.

The objective of this presentation is 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.

Possibilities and impacts of the following science dissemination activities on RNAi technology will be presented in order to promote a large discussion:

- to prepare a complete data base of literature references;
- to prepare review publications on the different aspects of siRNA and miRNA technologies; applications (including prospective future applications); biosafety, detection and monitoring; socio-economic impacts.
- to prepare a report on research priorities related to RNAi technology that may influence future research programs to be identified with a priority for new EU H2020 programs.
- to promote and coordinate the realization of a network of field trials to be used to demonstrate the potentiality of the technology to scientists, industry and public. Within the scientific aspect of biosafety issues, maybe a book on risk assessment of RNAi plants could be prepared.
- Define scientific topic to be included in the future training schools.
- Start planning the writing of a book as final outputs of iPLANTA COST Action.

All these topics have to be discussed and planned with the identification of scientific responsibilities for each task.

PROMOTING SHORT TERM SCIENTIFIC MISSIONS (STSM)

AUTHORS	ORAL PRESENTATION	
JORGE PAIVA, MARKO PETEK VESNA TUMBAS-ŠAPONJAC	SHORT TERM SCIENTIFIC MISSION IN COST ACTION CA 15223: DEVELOPING A NETWORK OF SKILLS AND COMPETENCES IN RNAi	20 min