

COST Action Final Achievement Report

FA1206: Strigolactones: biological roles and applications

(12/04/2013 to 11/04/2017)

The Action was approved by the Committee of Senior Officials (CSO) on 21-11-2012 and has the MoU reference COST FA1206-MoU.

This report was submitted on 29-05-2017 by the Action Chair on behalf of the Management Committee in fulfilment of the requirements of the rules for COST Action Management, Monitoring and Final Assessment.

Action leadership and participants

Leadership positions

Position	Name	Contact details	Country of work affiliation
Chair	Prof cristina prandi	cristina.prandi@unito.it +390116707643	Italy

Position	Name	Contact details	Country of Nomination
Vice Chair	Dr Hinanit Koltai	hkoltai@agri.gov.il +972 3 9683039	Israel

Working groups

#	WG Title	# of participants	WG Leader	Country of nomination
1	SLs as Plant hormones	35	Prof Ottoline Leyser ol235@cam.ac.uk	United Kingdom
2	SLs as signals for parasitic plants	24	Mr Maurizio Vurro maurizio.vurro@ispa.cnr.it	Italy
3	role of SLs in the soil biota	34	Prof Yoram Kapulnik kapulnik@volcani.agri.gov.il	Israel
4	Biochemistry of SLs/design and synthesis of analogues	30	Prof Binne Zwanenburg B.Zwanenburg@science.ru.nl	Netherlands

Other key leadership positions

Position	Name	Contact details	Country of work affiliation
----------	------	-----------------	-----------------------------

Participants

COST members having accepted the MoU

AT	10/12/2012	BE	22/01/2013	BG	03/07/2014	HR	22/01/2013	CZ	04/03/2013
DK	08/08/2013	FR	17/12/2012	DE	17/01/2013	EL	11/01/2013	HU	03/07/2014
IL	28/11/2012	IT	12/12/2012	NL	11/01/2013	NO	28/02/2013	PL	14/12/2012
PT	11/01/2013	RO	27/12/2012	RS	22/02/2013	SK	28/12/2012	SI	29/05/2013
ES	28/11/2012	SE	07/02/2013	CH	01/03/2013	TR	14/03/2016	UK	28/11/2012

Other participants

Institution Name	Country
University of Benin, Benin City	Nigeria
Kobe University	Japan
The University of Queensland,	Australia
The University of Tokyo	Japan
The University of Western Australia	Australia
UNIVERSITY OF MISSISSIPPI	United States
University of California	United States
Utsunomiya University	Japan
Virginia Tech	United States
INSTITUT DE L'ENVIRONNEMENT ET DE RECHERCHES AGRICOLES (INERA)	Burkina Faso
Institute for Plant Biotechnology Stellenbosch University	South Africa
National Institute of Agricultural Research of Tunisia	Tunisia

Summary

Main aim/ objective

The aim of this COST Action is the advancement and dissemination of knowledge on strigolactones and their use both in basic science and applied science to promote biomass and yield production of agricultural crops while simultaneously reducing the input of agrochemicals.

The Action addressed this as described below

STREAM main objective was the creation of a network of researchers studying the biology and the potential exploitations of the SLs. Stream is a story of success, specific goals, tasks and key objectives have been fulfilled and can be grouped at three main levels:

- 1) SCIENTIFIC: Coordination of research building strategies widening the common view on SLs both in basic and applied science. Stream is the world reference point for research on Strigolactones.
- 2) TRAINING: a new generation of scientists was trained thanks to the CA tools (STSMs, Training Schools, student exchanges within the network). This has brought to an increased knowledge and expertise of young researchers from different fields and disciplines, we can expect that this will lead to the implementation of new approaches in the field of plant production and environmental sustainable fertilizers
- 3) TECHNOLOGICAL: Highlighted perspectives and opportunities for potential SLs applications.

In addition, strong relationships with big world leader companies in the field have been established. The last meeting organized by Syngenta as follow up of the Turin meeting (ICS 2017 www.strigolactones2017.it) was focused on the real perspective of bringing SLs on the market.

For more detailed description of activities please consider the final WG leaders reports, available on the Stream website at <http://www.stream.unito.it/> on the page "Download-meeting-memories".

During the final meeting the MC group agreed on stating that the COST Action FA1206 has been a fundamental tool to build a strong international scientific community where there was no community at all. This has been recognized as the main and great added value of the Action, which has inspired, both directly and indirectly, many publications and research projects.

The activities of the Action brought worthwhile impact at a socio economic level in the use of SLs as new tools to assess new concepts in an integrated crop management vision, in view of commercialization.

During the last meeting the MC discussed about the future of the network after the Action's lifetime and the opportunity to apply for other European funding opportunities. The MC Committee recognized that a strong plan is needed in order to broaden the already established network and channel the scientific efforts into a fruitful and shared cooperation project.

Action website

www.stream.unito.it

Achievement of MoU objectives, deliverables and additional outputs/ achievements

MoU objectives

The Action had the following specific objectives:

MoU objective	Level of achievement	Further information (hyperlink or other)
creation of a multidisciplinary network of experts, of basic and applied sciences, who can share expertise and developmental knowledge about the multifaceted biological role of Strigolactones	76 - 100%	<p>The object has been realized. A comprehensive network of scientists has been established.</p> <p>During the implementation of the Action, a serie of Internation Congresses on Strigolactones started. This will be continued after the end of the Action, the third edition will take place in China in 2021.</p> <p>www.strigolactones2017.com</p>
coordination of the research activities is aimed at the exploitation of SLs in the development of new agro-technologies	51 - 75%	<p>During the implementation of the Action, a number of companies have been invited to join the meetings on aregular base. Among them, Syngenta took actively part and in some cases sponsorized the meetings (1 and 2 ICS meetings).</p> <p>In addition, Syngenta organized a satellite meeting following the meeting in Turin, in collaboration with the Chair of the Action.</p> <p>http://www.strigolactones2017.it/38/Satellite%20event</p> <p>Workshop aiming to define the potential of strigolactones in modern agriculture</p> <p>Syngenta is organizing a one and a half day workshop together with Professor Cristina Prandi, University Torino.</p> <p>The event will take place on Monday April 3rd and Tuesday morning April 4th 2017 at the Syngenta research center in Stein, Switzerland.</p> <p>It is scheduled directly after the 2nd International Congress of Strigolactones.</p> <p>The workshop will be unique in that the broad visions for future application of strigolactones in modern agriculture will be co-created through interactions between a selection of academic and Syngenta experts in the area of strigolactone research.</p>
apply new understandings to develop novel concepts for parasitic plant control and for the improvement of plant production in a more sustainable framework	76 - 100%	<p>The research on the use of SLs in the development of new concepts for parasitic plants combact strategy is improving. During the last meetings new approaches have been proposed whose implementation is under study.</p>

		<p>For more detail see the following publications, all of them coauthored by key members of Stream</p> <p>Screpanti, C., Yoneyama, K., Bouwmeester, H.J., 2016. Strigolactones and parasitic weed management 50 years after the discovery of the first natural strigolactone strigol: status and outlook. <i>Pest Management Science</i>, 72: 2013-2015.</p> <p>Mohemed, N., Charnikhova, T., Bakker, E.J., van Ast, A., Babiker, A.G.T., Bouwmeester, H.J., 2016. Evaluation of field resistance to <i>Striga hermonthica</i> (Del.) Benth. in <i>Sorghum bicolor</i> (L.) Moench. The relationship with strigolactones. <i>Pest Management Science</i> 72: 2082-2090.</p> <p>Vismans, G., van der Meer, T., Langevoort, O., Schreuder, M., Bouwmeester, H., Peisker, H., Dörman, P., Ketelaar, T., van der Krol, A., 2016. Low-phosphate induction of plastidal stromules is dependent on strigolactones but not on the canonical strigolactone signaling component MAX2. <i>Plant Physiology</i>, 172: 2235-2244</p> <p>Charnikhova TV, Gaus K, Lumbroso A, Sanders M, Vincken JP, De Mesmaeker A, Ruyter-Spira CP, Screpanti C, Bouwmeester HJ., 2017. Zealactones. Novel natural strigolactones from maize. <i>Phytochemistry</i>, in press doi: 10.1016/j.phytochem.2017.02.010</p> <p>Xi Cheng, Kristyna Flokova, Harro Bouwmeester, Carolien Ruyter-Spira, 2017. The role of endogenous strigolactones and their interaction with ABA during the infection process of the parasitic weed <i>Phelipanche ramosa</i> in tomato plants. <i>Frontiers in Plant Science</i>, in press</p>
<p>creation of an integrated strategic community focused on SLs and their use both in basic science and applied science to promote biomass and yield production of agricultural crops while simultaneously reducing the input of agrochemicals</p>	<p>76 - 100%</p>	<p>New findings in basic research developed inside the Stream network are under study to verify the feasibility in field. To properly address this point a meeting focused on Biostimulant has been organized in the 3GP.</p> <p>Ashdod (Israel) (March 2016). WG3.</p> <p>‘Plant Bio-Stimulants in Agriculture’</p> <p>Oral presentations: 20</p> <p>Posters: 6</p>
<p>generate new research areas and capabilities</p>	<p>76 - 100%</p>	<p>During the implementation of the Action new breakthrough in the field made possible to generate new putative applications of Strigolactones in different fields.</p> <p>a) effects on Rhizobium and nodulation</p> <p>b) elucidation of molecular mechanism of perception of Strigolactones in plants and their effects on plant traits above and below ground.</p>

		c) Role and possible use of Strigolactones as anticancer agents.
Coordination in rising to the challenges of research in the SL field, the priorities and opportunities for further research on SLs from basic to applied aspects, building synergies and eliminating duplication. Outcome: Sharing and increasing basic knowledge on SLs biology.	76 - 100%	The objective has been fully fulfilled. Stream has become a worldwide reference for Strigolactones research. The community built around this topic thanks to the Coast Action is planning to further continue the networking activity by submitting new applications in the frame of Eu opportunities.
A common and shared scientific approach to investigate the multiple roles of SLs. Outcome: Coordination in the standardization of experimental procedures, protocols, methods, evaluation and interpretation of results.	76 - 100%	In training schools and meetings the main aim since the very beginning of the action was the standardization of experimental protocols in order to reach a clearcut evaluation of the obtained results. The training activity was implemented with the organization of the “ <i>Summer Training School on Parasitic Plants - Role of Strigolactones in parasitic plant management – SUTCO</i> ”, Cadiz (Spain), from June 30 th to July 4 th 2014 (http://www.stream.unito.it/index.php/events/event). (See Annexes in the separate folder). - A Training School on Strigolactones biological effects phenotyping, 19 th – 23 rd October 2015, has been held in Olomouc (Czech Republic). The Stream website (www.stream.unito.it) has been continuously uploaded and specifically designed to be used as a forum tool to fuel exchanges of ideas and proposals.
Widen the common view on roles and potential of SLs both in basic and applied science to scientists from all over the world. Outcome: Integration into the network of scientist from non-EU countries.	76 - 100%	The effort in this direction will last for all the duration of the action. The Action ended with 25 Eu countries in the network, 6 IPC and 1 NNC countries.
Highlighting new perspective and opportunities for potential SL application. Outcome: Interaction between researcher from academia and industry.	51 - 75%	http://www.strigolactones2017.it/38/Satellite%20event
evaluation of the potential of SLs applications in identifying innovative and unified management strategies to combat pests plague in whole European area, Mediterranean and Africa. Outcome: Addressing the problem of root parasitic weed infestations that affect vast region in the Mediterranean area and Africa.	51 - 75%	An integrated vision in the management of parasitic weeds has been promoted during the Action. Enlightening at this regard is the following publication Vurro M., Prandi C., Baroccio F., 2016. Strigolactones: how far is their commercial use for agricultural purposes? Pest Manag. Sci., 72:2026-2034.
Evaluation of the potential of SLs applications in identifying innovative approaches for regulation of both root and shoot development for improved	76 - 100%	New advances in the use of SLs in improving productivity in crops have been gained.

<p>agricultural productivity. Outcome: Addressing the utilization of SLs for regulating of plant development a</p>		<p>More in details</p> <ul style="list-style-type: none"> • Improved understanding of role of SLs in root and shoot development; • New insight into the roles of strigolactones in plant development • A better understanding of the crosstalk between SLs and auxin, cytokinin... • Identification of most biosynthesis pathway components, SLs transporters identified, signaling pathway components are known • new functions of SLs in plant physiology; • New roles of SLs in plant response to environment • exploitation of the regulation of plant growth for agricultural needs. • Efforts to apply SLs in agriculture using novel and traditional delivery systems and new SLs analogs, for a large variety of agriculture applications.
<p>New opportunities for the reduction of agrochemicals in agriculture. Outcome: Addressing the utilization of SLs to improve the efficiency and quality of AMF and rhizobial inocula used as biofertilizers to reduce chemical fertilization. Involvement of industries, patent applications will be chosen as criterion to evaluate the implementation of the Action.</p>	<p>51 - 75%</p>	<p>This is the main focus of WG3. To this extend we have organized two meetings, one in Madrid and one in Ashodt (IL) focused on these subjects and addressing regulatory issues. Industries operating in the field of AMF and Rizhobia biofertilizers will be involve.</p> <p>http://www.stream.unito.it/index.php/working-groups/task-force-ipr</p> <p>Patent (TROVA LA LISTA)</p>
<p>Increased knowledge and expertise for young researchers from different fields and disciplines that will persist beyond the end of this Action. Outcome: Capacity building of young researchers in the field of plant biology.</p>	<p>76 - 100%</p>	<p>Capacity building of young researchers is a strong motivation for us to organize efficient and multidisciplinary training Schools. An integrated Summer Training School on Parasitic Plants:</p> <p>Role of Strigolactones in parasitic plant management has been organized in Cadiz, an additional Fall Training Course On Strigolactones Biological Effects Phenotyping is organized in Olomouc / Czech Republic (http://www.stream.unito.it/index.php/events/event)</p>
<p>In addition to coordinating existing research groups and projects, the opportunity to share knowledge stimulate the emergence of new research ideas, projects and tools and skills. Outcome: Establishing regular meetings and conferences discussing the progresses in the field.</p>	<p>76 - 100%</p>	<p>This aim has been reached, the network is well established and is getting wider and wider including different expertise and competences. In addition to regular meetings we have set up the forum on Stream website to exchange information and opinion.</p> <p>http://www.stream.unito.it/</p> <p>In addition, the International Congress on Strigolactones will continue after the end of the Action every two years, next one in 2021.</p> <p>http://www.strigolactones.org/</p> <p>www.strigolactones2017.it</p>
<p>Increasing accessibility of communication and interaction between COST participants, creating a</p>	<p>76 - 100%</p>	<p>www.stream.unito.it</p>

prompt, updated and reliable network of information and coordination while expanding the network and collaboration beyond borders and disciplines. Outcome: Establishment of communication tools (websites, online platforms, forum of discussions).

www.strigolactones2017.it

Deliverables

The Action reported the following deliverables:

Deliverable	Timing of deliverable	Further information (hyperlink or other)
Sharing and increasing basic knowledge on SLs biology. A book on Strigolactones for the benefits of MD students and teachers is planned by the end of the Action	Not delivered, but foreseen within 2 years	Springer agreed in publishing a scientific book (Editors: Cristina Prandi, Hinanit Koltai and Tony Hooper). The book will be the first book totally dedicated to Strigolactones and it will highlight the role SLs play in plant development, in plant interactions and for agricultural use. The chapters (approximately 20 chapters of 15 pages each) would follow the subjects identified in the COST Action FA1206 and the authors will be COST FA1206 some of the most active members and other world-leading scientists invited to the 2 nd International Congress on Strigolactones. They have been asked to provide a written contribution as part of the conference while financial support is provided by the COST Action. Material should be ready for reviewing by November 2017 and returned for February 2018 when decision on the content chapters can be finalized and a draft generated during 2018. In addition a video could be realized to be distributed to teachers and to students in academy. The main purpose of the multimedia content will be to straightforwardly deliver the multi-aspects role of Strigolactones in easy and friendly way, and to transfer know-how about biological assays the network has been able to optimize and standardize during the networking activities of the Cost Action. It would be therefore suitable for undergraduate plant sciences.
Coordination in the standardization of experimental procedures, protocols, methods, evaluation and interpretation of results. Protocols for biological tests have been standardized and taught to students and researchers at the Training School organized in Olomouc (see www.stream.unito.it)	Delivered	http://www.stream.unito.it/index.php/download/download-reserved
Contacts with companies are ongoing, trial fields have been run in some countries both with synthetic and natural extracts enriched in SLs. B. Zwanenburg, A. S. Mwakaboko and C. Kannan, Suicidal germination for parasitic weed control, Pest Management Science, 2016, 72, 2016-2025.	Not delivered, but foreseen within 2 years	
Establishment of communication tools (websites, online platforms, forum of discussions. A forum has been created on Stream website for exchanges of ideas and protocols.	Delivered	www.stream.unito.it
Regulatory issues have been addressed in meeting dedicated to the applications of Strigolactones in agriculture. Expert from the EU as well as representatives of companies and of public institution (National Agricultural	Delivered	http://www.stream.unito.it/index.php/working-groups/task-force-ipr

Ministeries) have been invited to give talka and participate in fruitful round tables.

Additional outputs/ achievements

N/A

Projects

N/A

Other outputs / achievements

N/A

Impacts

The Action reported the following impact(s):

Description of the impact, i.e. what will change, and for whom, as a result of what the Action achieved	Type of impact	Timing of impact
Immediate and long term benefits for the career of the Early Career Investigators who actively participated in the Action's STSMs, Training Schools and meetings. Their scientific contributions were essential to the Action success. At the same time, the Action represented for them the opportunity to raise their academic profile (advancing both specific scientific competences and soft skills) and network with outstanding scientists. Certificates of attendance/poster/presentation have been given to them for their CV track-records. A Short Term Scientific Mission Award has been awarded to the ECI Dr Simone Belmondo.	<ul style="list-style-type: none"> Scientific / Technological 	Achieved
The attractiveness of Science for the general public and secondary school students has been increased by the Stream Action as a consequence of the dissemination activities organized within its duration (i.e. Festival of Science held in Genova- 2013-2016 etc.)	<ul style="list-style-type: none"> Societal 	Achieved
<p>A fundamental role has been played by women both in the Action and in Science.</p> <p>As regards the management of the Action, Stream has been chaired by two women (and scientists). In addition, the GH of the Action is also a woman, Emilia Sannino. This fact allowed to establish a shared view and enhance synergies between the members of the Action, affecting the general organization of the networking activities.</p> <p>As regards the science, 19 out of 28 STSMs have been performed by women (61%). In general, the number of women participating in the Action has increased year by year.</p>	<ul style="list-style-type: none"> Societal 	Achieved
The Action Stream helped in overcoming fragmentation of research activities (several interdisciplinary contacts and publications) and barriers to mobility across sectors, disciplines and countries.	<ul style="list-style-type: none"> Scientific / Technological 	Achieved
<p>New synergistic interactions between scientists.</p> <p>Professor Christopher Mc Erlean from Australia was enrolled in the Visiting Professor Program of the University of Turin. He spent some months at the Department of Chemistry in Turin (Italy) and taught to bachelor, MD and PhD students.</p> <p>Approximately 160 students attended his lessons.</p>	<ul style="list-style-type: none"> Scientific / Technological 	Achieved
<p>New strong relationship with one of the company world leader in the field.</p> <p>Exchange of students, collaborations and recruitments of graduate students from the Universities involved in the Action and Syngenta are foreseen in the short term period. Decision on it has been taken in the occasion of the satellite meeting following the ICS2017 organised by Syngenta Crop Production (2-days event in Switzerland - Stein)</p>	<ul style="list-style-type: none"> Scientific / Technological Economic 	Achieved
A high value impact of this Cost Action was the recruitment of Emilia Sannino in our Department.	<ul style="list-style-type: none"> Scientific / Technological 	Achieved

<p>Emilia Sannino was selected in a public competition four years ago at the beginning of the Cost Action Stream to give support in the administration of the budget and in the organization of the networking activities. She came from international and national experiences in the frame of European policies. Her contribution has been crucial for the success of the Action, she has an open mind approach that assured a comprehensive vision of the project. All the participants had the opportunity to appreciate her professional support. During these years she started to participate in the management of other Eu projects running in the Department of Chemistry, and gave courses at the PhD School of Turin University on European policy and opportunities for ESRs. In few months Emilia will be recruited in the permanent staff of the Department.</p> <p>This is a tangible impact of the Cost Action.</p>		
<p>The Action had a high impact on the maintenance of the strong scientific leadership in this field currently held by European scientific groups.</p>	<ul style="list-style-type: none"> • Scientific / Technological • Economic • Societal 	<p>Foreseen two-to-five years</p>
<p>Impact on increasing plant production according to emerging new concepts of sustainable agriculture</p>	<ul style="list-style-type: none"> • Scientific / Technological 	<p>Foreseen five-to-ten years</p>
<p>Impact on advances in scientific/technological understanding of SLs.</p>	<ul style="list-style-type: none"> • Scientific / Technological 	<p>Foreseen five-to-ten years</p>

Dissemination and exploitation of Action results

Dissemination and exploitation approach of the Action

The Action's dissemination and exploitation approach as well as all activities undertaken to ensure dissemination and exploitation of Action results and the outcomes of these activities are described below.

Activities performed during the Action lifespan, namely: 1) Website (public and reserved sections) constantly updated and scientific WG Forum set up to let COST Action members have fruitful scientific conversations with the other STREAM members. 2) Social networks: ad hoc Facebook (73 friends) and LinkedIn (48 followers) pages created to increase as much as possible the interest in the scientific contents of the FA1206 COST Action 3) Joint publications authored by Action participants for which the Action networking represented a clear added value 4) Scientific proposals spinning off from Action activities: applications/ H2020 proposals and funded projects spun off from Action's activities. 5) Action outreach activities and external events such as the dissemination event in which the Chair gave an oral presentation about Strigolactones together with the Vice Chair and Prof. Yoram Kapulnik from ARO (IL). The workshop was directed to the general public of the "Festival della Scienza" which took place in Genova on 5th November 2016. The title of the talk was "Smart Signalling Molecules at work in the soil. A wireless Communication Network underground" and it focused on SLs as signalling molecules, which play key roles in the intricate communication network between living organisms within the soil. 6) Other activities: A) the open access publication in *New Phytologist* (2016) titled "Low levels of strigolactones in roots as a component of the systemic signal of drought stress in tomato" and authored by Francesca Cardinale, Miroslav Strnad, Ondrej Novak, Carolien Ruyter-Spira and Yanxia Zhang (3 COST FA1206 members); B) a "research impact report" published on Science Impact Ltd draft to communicate the objectives, work and impact of the Action within the food, agriculture, fisheries, plant/crop and forestry research fields. The article has been published on the review called "Impact" and distributed in printed and digital format to 35'000 readers worldwide (i.e. all major stakeholders related to the agriculture, food, forestry, fisheries and knowledge based bioeconomy fields within universities, research institutes, national and regional funding agencies, policy, NGOs, government and private and public sectors including agriculture agencies, farming, food production, natural resource management and national government). c) other articles written for Italian press (targeted to the general public): 1) "Strigolattoni: una nuova opportunità per la sostenibilità?" authored by Cristina Prandi on the journal "Piemonte Parchi" - March 2017 <http://www.piemonteparchi.it/cms/index.php/natura/piante/item/1844-strigolattoni-una-nuova-opportunita-di-sviluppo-sostenibile> ; 2) "Alla scoperta degli Strigolattoni per un'agricoltura sostenibile" authored by Cristina Prandi on the online journal "UNITONEWS" - March 2017 http://www.unitonews.it/index.php/it/news_detail/alla-scoperta-degli-strigolattoni-unagricoltura-sostenibile; 3) "STEM: la forza delle ragazze" authored by Nadia Governo - Cristina Prandi interviewed on NTT DATA Italia- March 2017 7) Final Action Dissemination (FAD): Springer agreed in publishing a scientific book (Editors: Cristina Prandi, Hinanit Koltai and Tony Hooper). The book will be the first book totally dedicated to Strigolactones and it will highlight the role SLs play in plant development, in plant interactions and for agricultural use. The chapters (approximately 20 chapters of 15 pages each) would follow the subjects identified in the COST Action FA1206 and the authors will be COST FA1206 some of the most active members and other world-leading scientists invited to the 2nd International Congress on Strigolactones. They have been asked to provide a written contribution as part of the conference while financial support is provided by the COST Action. Material should be ready for reviewing by November 2017 and returned for February 2018 when decision on the content chapters can be finalized and a draft generated during 2018. In addition a video could be realized to be distributed to teachers and to students in academy. The main purpose of the multimedia content will be to straightforwardly deliver the multi-aspects role of Strigolactones in easy and friendly way, and to transfer know-how about biological assays the network has been able to optimize and standardize during the networking activities of the Cost Action. It would be therefore suitable for undergraduate plant sciences.

Dissemination meetings funded by the Action

The Action funded Dissemination Meetings as shown below:

Title	Festival della Scienza Genova http://www.festivalscienza.it/site/home.html

Date	05-11-2016 to 05-11-2016	Country	Italy
Event	Festival della Scienza di Genova 2016 - Main topic of the year: Segni (=signals)		

Other dissemination activities

The Action also undertook the following dissemination activities:

Activity	Outreach paper entitled "Strigolattoni: una nuova opportunità per la sostenibilità?" written by Cristina Prandi and published on the online journal "Piemonte Parchi" (specialised journal of Piedmont Region with more than 6.000 subscribers) - March 2017
Target	General public - interested in issues related to nature and parks
Outcome	High visibility of the Action
Link	http://www.piemonteparchi.it/cms/index.php/natura/piante/item/1844-strigolattoni-una-nuova-opportunita-di-sviluppo-sostenibile

Activity	University of Torino's website advertisement titled "Alla scoperta degli Strigolattoni per un'agricoltura sostenibile" written by the Chair Cristina Prandi - 27 March 2017 – in UNITONEWS
Target	Short and long term staff/students/professors and researchers of the University of Torino - local scientific community General public
Outcome	Visibility of the Action
Link	http://www.unitonews.it/index.php/it/news_detail/alla-scoperta-degli-strigolattoni-unagricoltura-sostenibile

Activity	Publication titled "A pan-Europe network of strigolactone expertise" - March 2017
Target	General public and scientific community
Outcome	Disseminating information about the activities of the Cost Action Stream and the potential of the application of Strigolactones
Link	http://www.ingentaconnect.com/content/sil/impact/2017/00002017/00000003/art00012

Activity	Oral presentation - presenting Stream - given by the Chair Cristina Prandi at the "Science Festival" held in Genova on 23 October-3 November 2013
Target	General Public
Outcome	Good success, 100 attendees and many questions. High visibility of the Action.
Link	https://www.youtube.com/watch?v=VtfTBoEzm1I (min.55 onwards)

Activity	Presentation of the Action given by the Chair Cristina Prandi at the ERANET meeting held in Budapest on 14th March 2014. Travel expenses supported by the Host.
Target	Researchers and stakeholders
Outcome	Contacts for further Eu applications
Link	no link

Activity	Scientific presentation of the Action given to the WCPP13 by the Action Vice Chair Hinanit Koltai in the framework of the 13th World Congress on Parasitic Plants (WCPP13) held in Kunming from 5th to 10th July 2015
Target	Scientific community

Outcome	New contacts and new partners included in the Action
Link	http://wcpp13.csp.escience.cn/dct/page/70007

Activity	A symposium dedicated to Strigolactones and to the starting of the Cost Action Stream has been organised as opening session (titled "Strigolactones: Structure and Function") in the framework of the 12th World Congress of Parasitic Plants (Sheffield, 15th-20th July 2013).
Target	Scientific community
Outcome	This was a worthwhile opportunity to advertise the launch of the Action. New contacts and new partners included in the Action.
Link	http://www.parasiticplants.org/docs/ipps_12th_congress_abstracts_sheffield_uk.pdf

Exploitation activities

The Action undertook the following activities to ensure exploitation (use, in particular in a commercial context) of the Action's achievements:

Activity	Strigolab academic spin off
Target	Researches and farmers
Outcome	www.strigolab.eu Some of us established an academic spin off to produce and sell SL-like molecules to the scientists working in the field. The network created by means of the CA FA1206 has been crucial to launch the activity of the company

Action Success(es)

The Action's two most significant successes were the following:

- COST Action Stream is now the world reference point for research on Strigolactones
- 1) Training of a new generation of scientists - which will lead to the implementation of new approaches in the field of plant production and environmental sustainable fertilizers - has been performed 2) The worthwhile socio economic impact in the use of SLs as new tools to assess new concepts in integrated crop management - towards commercialization 3) Consolidation of the different WGs in two aspects: a) Intra-WG - fruitful interdisciplinary discussions have been promoted, and collaborations among partners strengthened (e.g. large number of STSM conducted intra-WG) b) Inter-WG - mutual exposure to oral presentations and discussions of the other WGs and multidisciplinary work programs planned - interdisciplinary collaborations fostered. 4) COST Action FA1206 paved the way to the organization of the first two editions of the International Congress on Strigolactones (2015 and 2017). The Third International Congress on Strigolactones (ICS2020) will be organized in China in 2020 – after the end of the Action – ensuring the sustainability and the importance in terms of impacts and scientific relevance of the activities carried out throughout the last 4 years. 4) Following the end of the ICS2017, Syngenta Crop Production organized a satellite meeting (2-days event) in Switzerland (Stein) whose outcome has been a position paper – shared by scientists and representatives of the industrial sector - focusing on the potential application of SLs in agriculture, the main technical challenges to be faced, the testing systems to be developed and the regulations for commercialization. The event has been a unique opportunity to bridge the advancements between fundamental and applied research in the Strigolactone domain by relying on a very interdisciplinary forum including public and private actors.

Action Expenditure

The table below shows the budget allocated to the Action for each Grant Period:

#	Grant Period	Start Date	End Date	Budget allocated to Action (EUR)
1	CGA-FA1206-1	1-6-2013	31-5-2014	139,725.00 (EUR)
2	FA1206-20131120	1-6-2014	31-5-2015	144,500.00 (EUR)
3	CGA-FA1206-3	1-6-2015	31-8-2015	13,309.17 (EUR)
4	CGA-FA1206-3B	1-9-2015	30-4-2016	132,752.33 (EUR)
5	AGA-FA1206-5	1-5-2016	11-4-2017	118,569.60 (EUR)