



Strategic Research Agenda (SRA) Workshop report v1
18th March 2015
AgroParisTech 16 rue Claude Bernard, Paris, France

A group of 65 participants from 20 European countries (**see appendix 1**)- including C-IPM partners, researchers, policy makers, government officials and agricultural advisors - met in Paris to discuss on the Strategic Research Agenda (SRA) for IPM in Europe.

The overall objective of this workshop was to: critically discuss the overall content of the first draft SRA and the comments received from the public consultation (**see appendix 2**) in the light of their relevance as well as to collect different points of view which improve the SRA. The final objective was to prepare a revised SRA and in the course to be further finalized also to include relevant information for short-to-medium as well as for long term IPM priorities for Europe.

The second draft of the SRA (the revised version) will be available on the C-IPM website for further comments for two and half months (from mid-July to last September) prior to its finalization (within December 2015).

The SRA workshop began with a welcome address and a brief introduction of the ERA-Net C-IPM by the C-IPM coordinator, Antoine Messéan. The participants were informed about the networking project, its objectives, activities carried out to date and those to be performed in the next two years. In addition, the C-IPM coordinator also highlighted the IPM challenges in Europe and introduced the draft SRA, its structure and briefly described the methods of the process.

The opening session was followed by an interactive session presented by the C-IPM scientific officer, Jay Ram Lamichhane. During this session, the comments received in the public consultation and their relevance to the SRA were discussed. More specifically, comments related to the three questions asked in the public consultation and general comments were discussed and/or clarified. The detail of the discussion is presented below.

The afternoon interactive session of the SRA workshop focused on the discussion of the comments received from public consultation related to the four specific core-themes. In this session, chaired by Per Kudsk, WP4 leader of C-IPM, four speakers briefly presented the importance of the core-themes for IPM R & D in Europe and also listed the comments received from public consultation to trigger the discussion.

The talks formed the basis of the afternoon discussions on four core-themes:

- Core theme A: Preventive and sustainable pest management presented by Pierre Ricci, Ecophyto, France;

- Core theme B: Alternative and Innovative control methods presented by Ellen Pelgrims, IWT, Belgium;
- Core theme C: IPM in minor use presented by Jean-Claude Malet, MAAF, France; and
- Core theme D: Pesticide impact and IPM implementation indicators presented by Piet Boonekamp, WUR, the Netherlands.

Per Kudsk, the afternoon session chair, presented the summary of discussions. Finally, Antoine Messéan gave closing remarks and briefly presented next steps of C-IPM activities planned in the next two years. The main outcomes and conclusions from the discussions are presented below.

Summary discussions and conclusion of the morning interactive session:

Question 1: are the research priorities and topics proposed in the SRA exhaustive to address IPM challenges in Europe? If not, do you want to propose additional topics?

Most of the comments received from public consultation highlighted the need to put more emphasis on socio-economic aspects of research. Consequently, the participants were asked to as to whether to create a separate core-theme for the topic or to consider it in a transversal way for all research topics. Overall, it was acknowledged that there are pros and cons about the separate introduction as a specific core-theme. Several participants highlighted that socio-economic parts should be addressed in each funded project as any IPM solution should be evaluated for its economic feasibility and impact. Some of the participants advocating for integration of socio-economy in each topic/project also underlined that there was a challenge to assess the economic value of IPM and that this fact would justify a specific topic. Others argued that whatever is the structure of core-themes (there are pros and cons), the need of socio-economic research should be more emphasized in the SRA. It was also emphasized that socio-economy is needed as we often assess solutions on their short-term impacts while there is a need to consider the possible scaling-up of economic benefits of adopting IPM and as such it needs specific research since actual impacts of IPM for growers are not much studied. Socio-economy is often considered as the only driver and a discussion was triggered on the criteria. It was said that, even if on average IPM is economically viable, it might be less reliable and much more variable in terms of results than conventional pesticides. Hence risk aversion should be considered. Overall, the following was the conclusions drawn:

- more emphasis should be put on socio-economics in the SRA as it is often one of the main bottlenecks (IPM less profitable and/or more variable, more difficult to implement, etc);
- we need to consider socio-economics in every single project as part of a multi-disciplinary approach;
- there are also stand-alone or generic socio-economic questions that cannot be addressed through projects and that should be covered somewhere;
- a specific core-theme on socio-economy would currently not be within the scope of C-IPM but the stand-alone questions are likely to fit very well in a restructured core-theme D focussing on IPM implementation;

- there is a need to change the way we are currently conducting and planning research and this should be better highlighted in the first part of the document as one of the challenges.

A number of participants that commented on the draft SRA also pointed out that more emphasis is needed for training, knowledge sharing & dissemination of information in the SRA. During the interactive session, it was specifically asked whether this topic was relevant to introduce as a core-theme or were there other ways to highlight the importance of this topic. The following were the conclusions made:

- while training as such is not part of research, there is a need for research on training, in particular this topic can be included in core theme D;
- the Farm Advisory Systems ([Council Regulation 73/2009](#)) system on compliance should be mentioned in the SRA as a mean to ensure farmers access to IPM advisory services and training (Art. 12).

Question 2: Does the SRA help facilitate the transnational collaboration?

All participants acknowledged that this SRA can help facilitate the transnational collaboration but more European coordination of research activities with focus on crops or pests of common interest is needed. In addition, development of appropriate funding systems for transnational research activities is required and the involvement of stakeholders is needed in such a networking project. There were also comments that promotion of transnational collaboration on IPM research beyond the lifetime of C-IPM - through other research and dissemination support measures - need to be considered.

Finally, a long discussion was held on the possible need to set up or not a stakeholder platform on IPM. It was recognized that a stakeholder platform is a useful tool but such a tool should have a clear scope and probably cannot be only limited to IPM and be also open to integrated plant production raised; Some participants informed that there are already existing initiatives in this regard (AKIS, EIP, etc.) and a contractual public private partnership initiative is under consideration although it goes well beyond IPM.

Overall the following the conclusions were noted:

- there is a need to put more emphasis on capacity-building and personnel exchange, encourage Marie Curie actions on IPM (link with WP4), also COST actions might be considered;
- As for a specific stakeholder platform on IPM, it was agreed to monitor existing initiatives and try to ensure that IPM is enough considered in them.

Question no. 3: are there overlapping activities and/or possible synergies with other ongoing activities in Europe you may be aware of?

It was acknowledged that there exist a lot of initiatives/programs which have not been collated by C-IPM, either because the survey was filled in by respondents with a restricted view, or because some ongoing initiatives, not strictly related to IPM (e.g., sustainable intensification in UK) but to some extent somehow related to IPM, are not identified as part of IPM.

General comments:

Although C-IPM aims to foster transnational collaboration of IPM research, it was asked to the participants whether it can also, to some extent, improve regional collaboration at national level. Some participants mentioned that regional dimension of C-IPM is unclear as this highly depends on countries (for example, large countries such as France actually include diversified regions while a small country such as Denmark which can be considered a region of Scandinavia).

Concerning international collaboration, participants mentioned that C-IPM does not integrate research programmes at the international level and hence should be open to international collaboration. C-IPM should position itself better in relation with other bodies (FAO, OECD) which also need to be clarified in the SRA. For example, emerging and invasive pests is an example which demonstrates that we cannot ignore international collaboration in C-IPM, which may recommend to include provision in this regard.

Some participants suggested that the session on consumers' needs restructuring and it should be specifically referred to citizens.

Summary discussions and conclusion of the afternoon interactive session:

Core theme A: Preventive and sustainable pest management

The essential role of decision support systems (DSS) to help reduce the reliance on pesticides was acknowledged as DSS is an important phase to take decisions for pest control. In particular, DSSs would be a fundamental tool to understand how to use or combine properly chemical control methods and alternatives to pesticides. The robustness of cropping systems is important for growers to avoid and/or reduce pest attacks but it was also highlighted that cropping systems cannot be designed just for IPM but should also consider their economic profitability. It was also mentioned that all technologies and applications available to date for growers should be mentioned in the SRA as farmers can highly benefit from them. Initiatives are needed to generate European data. Some participants highlighted the need to mention cropping system boundaries beyond the field level (landscapes etc.). Landscape management and its role in pest management should be highlighted in the SRA and for this reason it needs to be specified. Others argued that in some countries like Denmark, where 25% of lands are rented every year, working at landscape level would be difficult.

The importance of translating the existing tools in widely useable practice was underlined. More emphasis on agronomic practices is needed for weed control. The role of conservation biological control was acknowledged to combine with other IPM tools although in itself it is not effective for pest suppression.

The role of transgenic crops or biotechnology-based crops needs to be considered as an innovative tool that can support the implementation of IPM. However, it was agreed that although breeding is an important tool to develop resistant varieties, it is resource intensive and time consuming practice. Different ongoing breeding programs in the US and across Europe need to be brought together. New phenotyping, new screening methods and markets need to be developed in order to breed varieties that could match with the needs that we have to date and to this objective public-private partnership is essential. It was also discussed that the same is true for crop diversification. Questions were raised as to whether we need to domesticate new crops for new systems.

Pest monitoring and the need to be more interactive with new monitoring tools in order to promptly detect pests in diverse climatic conditions as well as the adoption of modern IT-tools need to be included in the SRA. Furthermore, the need to link all kind of monitoring with threshold damage was acknowledged. It was also emphasized that most of the knowledge sharing in the SRA is dedicated to DSS but co-innovation and exchanges on demonstration farms should be addressed, too.

Core theme B: Alternative and Innovative control methods

It was acknowledged that we should talk about the combination of biological control methods with cultural and physical control methods as the latter foster the effectiveness of the former. Precision spraying should not be listed as a long term priority as technologies are already available. Although more research is needed to improve the efficacy of the sprayers in terms of their precision. To this aim, increasing or knowledge sharing is needed. Some participants pointed out that the SRA lacks information on pest resistance problems and it should be clearly mentioned. There was a debate as to whether we should or should not talk about “alternatives to pesticides” as the focus should be on integration as none of the other products will have the same efficacy under outdoor conditions as pesticides. To be pragmatic, combination should be a keyword and not just substitution in order to reduce the pesticide reliance. It was mentioned that in some cases there are alternative tools to pesticides which are as effective as pesticides so we should talk about alternatives as well as combination. It was mentioned that the potential lack of PPPs should be a driving force for research to seek alternatives. Finally, in addition to the evolution of resistance, it should be discussed in parallel about the evolution of farming practice adoption over the years.

Core theme C: IPM for minor uses (MU)

It was mentioned that, although MU is considered as a separate core-theme, MU issues are equally important also in major crops. For this reason, a joint interest of MU issues in major crops need to be specified in the SRA document thereby addressing this topic in a transversal way also for core-theme A and B.

In order to overcome the increasing scarcity of potentially available MU solutions, several initiatives within the EU are ongoing. Examples are the EU Technical Working Group on MU, several Commodity Expert Groups and the recently set up MU Coordination Facility co-funded by the EC. Hence, there is a need of an interplay between the ongoing MU activities at European level and C-IPM which needs to be clearly mentioned in the document. In addition, many non-European countries, such as the USA, Canada, have IPM programs for minor crops and some of them have a strong collaboration with European programs. A clear link with those countries need to be mentioned in the SRA document, in particular with the North American IR4 and global minor use summit programs.

While for potential solutions to solve MU problems, it was debated that in addition to the need of PPP, the need for breeding programs for minor crops need to be emphasized in the SRA document as the latter represents a potential tool for pest management also in minor crops. However, it was acknowledged that breeding for resistance is expensive and lengthy to address MU issues in the short term and therefore other alternatives need to be prioritized. In addition, it was mentioned that breeding programs should be taken up by breeders.

Core theme D: Pesticide impact and IPM implementation indicators

Overall, this core theme was proposed to be expanded to include socio-economics. It was emphasized that there was a need to clearly distinguish between the topics of the call and the core-themes of the SRA as the latter are supposed to last longer.

There is a need for more socio-economic studies to evaluate the positive and negative effects of pesticides. It was suggested first to list the benefits and then the risks of pesticides as we cannot say that all pesticides are harmful. In this section, a clear focus is needed on consumers. It was discussed about the development of simple indicators and this issue was challenged with questions such as simple indicator for whom and for what? Simple to communicate, to use, to develop? If the aim is simple for everything, this simple cannot be achieved. It was also discussed how such indicators will be used. Indicators at farm level, regional, national level? Maybe a set of indicators rather than the single one is needed.

It was also clarified that OECD has done work to collate existing risk indicators and future work is dedicated to IPM uptake indicators. IPM impact indicators and IPM uptake indicators are two different things. To respond how EU knows if its policy is successful it was highlighted that probably we need to work on indicators of IPM implementation which could provide some

information in this regard. Some participants highlighted that life cycle analysis is adopted by supermarkets and as such need to be considered. Others said that we can probably learn from organic or dairy farming where they use or aggregate different indicators, certified or not certified etc. other said that it does not have any sense of talking certification for IPM as this is by now mandatory.

The roles of retail chains and supermarkets, in particular, in encouraging IPM was discussed. Some participants reported that currently, retail chains negatively impact IPM adoption because of their unrealistic demands for quality, maximum residue levels and the rejection of even slightly blemished products. It was concluded that there are conflicting issues related to the supermarket. It means that not all blemished-free products are highly treated nor blemished products are not or less treated. Hence the mind of consumer should be changed.

Appendix 1: List of participants of the workshop

Name	First name	Country	Organization
Andreasen	Claus Bo	Denmark	AU
Andrивon	Didier	France	INRA
Anker-Nilssen	Kirsti	Norway	RCN
Becher	Martina	Germany	FOAG
Beres	Pawel	Poland	IPP-NRI
Berthelot	Regis	France	ARVALIS- Institut du végétal
Bluemel	Sylvia	Austria	AGES
Boissières	Daniel	France	MAAF
Boonekamp	Piet	The Netherlands	WUR
Breukers	Annemarie	The Netherlands	WUR
Broucqsault	Louis-Marie	France	FNAMS
Burçak	Aydan Alev	Turkey	MFAL-GDAR
Buurma	Jan	The Netherlands	WUR
Bylemans	Dany	Belgium	Pcfruit Npa
Carmona	Filomena	Portugal	DGAV
Cary	David	UK	IBMA
Christensen	Henriette	Belgium	PANE
Clark	William	UK	NIAB
Colleu	Sylvie	France	INRA
Dachbrodt-Saaydeh	Silke	Germany	JKI
Danielewicz	Jakub	Poland	IPP-NRI
de la Peña	Anabel	Spain	INIA
Dewasmes	Véronique	Belgium	PSW
Emeny	Gracie	UK	AHDB
Figueiredo	Elisabete	Portugal	ISA
Forristal	Dermot	Ireland	Teagasc
Fuchs	Annika	Germany	BLE
Fuhrmann	Elfriede	Austria	BMLFUW
Gautier-Hamon	Gérard	France	MAAF
Godinho	Maria	Portugal	ESAS
Guichaoua	Adrien	France	ACTA
Gyeraj	Andras	Hungary	Min. Agri.

Jansen	Jean Pierre	Belgium	CRA-W
Jerabek	Ladislav	Czech Republic	MZE
Jern	Tove	UK	MMM
Karahan	Aynur	Turkey	PPCRI
Kiss	Jozsef	Hungary	SZIE
Knight	Jon	UK	AHDB-HDC
Krieger	Karla	Austria	BMLFUW
Kudsk	Per	Denmark	AU
Lamichhane	Jay Ram	France	INRA
Le Corre Gabens	Nelly	France	FNSEA
Lucchesi	Valerio	France	EPPO/OEPP
Maes	Martine	Belgium	ILVO
Malet	Jean-Claude	France	MAAF
Mendes	Felisbela	Portugal	DGAV
Messéan	Antoine	France	INRA
Murchie	Archie	UK	AFBI
Nicot	Philippe	France	INRA
Nissinen	Anne	Finland	Luke
Pärenson	Helena	Estonia	EVPM
Pauwelyn	Ellen	Belgium	Inagro
Pelgrims	Ellen	Belgium	IWT
Raemy	David	Switzerland	FOAG
Ricci	Pierre	France	INRA
Roman	Johan	The Netherlands	NVWA
Ruzgiene	Dijana	Lithuania	LAAS
Semaskiene	Roma	Lithuania	LRCAF
Sønderskov	Mette	Denmark	AU
Stejskal	Vaclav	Czech Republic	CRI
Svensson	Jan	Sweden	FORMAS
Van der Wal	Leon	France	OECD
Verjux	Nathalie	France	ARVALIS- Institut du végétal
Vigouroux	Ronan	France	UIPP
Zweep	Annet	The Netherlands	EZ

Appendix 2: summary of public comments received through public consultation

Overall, 13 institutes/organizations have provided comments on the draft SRA and 2 of them were C-IPM partners. Respondents from a number of professions (researchers, policy makers, private enterprises, consultants, farmers' organizations) from 8 countries (DK, ES, FI, FR, IE, IT, NL & UK) have commented on the document. During the public consultation, three specific questions, a general comment on the SRA draft and specific comments related to the four core-themes were asked (see below).

In general, a positive to very positive opinion has been expressed on the SRA content. All those who provided the comments argued that the draft SRA is an important document for IPM in Europe and a number of comments/suggestions were received. In particular, while some comments were discussed during the workshop others were only clarified as they did not require a specific discussion. Each questions and the related comments are presented below.

Question 1. Are the research priorities and topics proposed in the SRA exhaustive to address IPM challenges in Europe? If not, do you want to propose additional topics?

The following were the comments received:

- A clear emphasis on socio-economic aspects of research is lacking to understand farmers' perceptions of the challenges while adopting IPM;
- There is a need to a paradigm shift. More emphasis on human and social sciences is needed to understand how we can make this change possible and why it is needed;
- The lack of proper focus, to date, on the socio-economic aspect should be listed as an important "weakness" in the SRA;
- In addition to develop quantitative indicators for IPM implementation, a focus is needed on qualitative research on how the process is perceived and what are the success stories or obstacles of adopting innovative practices;
- The roles of retail chains and in particular supermarkets, in encouraging IPM need to be highlighted. Currently, retail chains negatively impact IPM adoption because of their unrealistic demands for quality and the rejection of even slightly blemished products;
- The role of public policy to improve IPM R & D should be included as a priority in the SRA;
- The socio-economics of IPM implementation, including the role of value chain partners (food processing and retail), the social environment (advisors and colleagues), public opinion (activist and moderate NGOs) and farming styles (value chain oriented, agronomy oriented, equipment oriented) of farmers and growers
- More emphasis is needed on training and information for farmers, technicians and agricultural advisors;
- Knowledge transfer of IPM research needs to be prioritized in the SRA;
- Besides IPM, there is a need to cover organic farming explicitly;
- Consider topics such as reduction in spray drift, precision spraying etc. to ensure that they are taken into account in future research funding calls (ex. Horizon 2020);

- Information on new pest threats and adaptation of existing IPM to include new threats is lacking in the SRA;
- Pest management at the eco-scale of the pest rather than that of the decision maker (field or farm). Design & adoption of environmentally-sustainable pest suppressive landscape;
- Systemic survey on the 8 IPM general principles on a “country X crop” level to know input of pesticide on each crop, availability of effective alternative measures to pesticides and their costs;
- Update of the SRA on a regular basis including the new developments on pest control technologies;
- Pest resistance problem to pesticides, in particular the need to increase the basic knowledge on the genetic aspects of resistance development;
- How the IPM priorities listed in the SRA will be addressed at other levels, such as Horizon 2020.

Question no. 2. Does the SRA help facilitate the transnational collaboration?

The following were the comments received:

- Yes, but more European coordination of research activities that focus on crops or pests of common interest is needed;
- Development of appropriate funding system for transnational research activities is required;
- In addition to the existing research collaborators, the involvement of other stakeholders is needed;
- Promotion of transnational collaboration on IPM research beyond the lifetime of C-IPM, through other research and dissemination support measures should be emphasized.

Question no. 3. Are there overlapping activities and/or possible synergies with other ongoing activities in Europe you may be aware of?

The following were the comments received:

- INNOVINE aims to develop DSS for IPM in viticulture which also include IPM impact indicators;
- Overlapping with different programs funded by Ecophyto such as pesticide research programs.

General comments:

- IPM experiences and knowledge sharing at a more regional level are underestimated by the SRA;
- Previous works related to IPM performed at local levels need also to be taken into account;
- Representativeness of the farming community must be ensured in IPM related issues since the preparatory stage;
- In addition to the European level, collaboration and knowledge sharing related to IPM should be extended further;
- Priorities should be given to those pests and diseases which are of direct concern for the farming community;

- IPM adoption challenges in Europe is due mainly to different pedo-climatic conditions as well as cropping and farming systems which need to be clearly mentioned in the SRA;
- Identification of opportunities and mechanisms for knowledge transfer of IPM research need to be mentioned as an objective of the SRA;
- The definition of pests should include, in addition to diseases, harmful insects and plants, also harmful invertebrates (mites, nematodes, slugs etc.);
- Available funds must be dedicated to developing new practices and knowledge rather than the existing ones;
- The early sections of the SRA give the impression that IPM adoption is the main problem. While the lack of valid alternatives to chemicals for particular crop/pest situations is the main problem and this should be emphasized in the earlier sections;
- Reducing reliance on the use of synthetic pesticides while maintaining crop output, profitability and competitiveness is the main challenge for European agriculture and as such need to be highlighted in the SRA.

Core-theme A: Preventive and sustainable (pest) management

- Protection of surface water, practices that help reduce the use of herbicides (delay in sowing date, false sowing, mulching etc) have to be specified;
- Agronomic and cultural approaches that may prove beneficial, either as a single strategy or as part of an integrated system approach, need to be mentioned as potential tools to increase crop resilience;
- Specific recognitions on weeds are lacking;
- There is no mention of transgenic crops in the SRA. Political issues should not influence rigorous scientific debate on the role of transgenic in IPM. How can we talk about long term priorities if we fail to recognize the changes that will be unfolding over the next years;
- Certain pests are not limited to national boundaries and therefore, the development of forecasting systems benefits of co-operation between neighbouring countries;
- Web-based tools should be implemented to share data coming from harmonized monitoring activities carried out at the European level;
- Quality of information on PMS should be considered rather than quantity;
- More focus is needed on combining conservation bio-control with other IPM tools;
- Reduction of chemical inputs to pest control should reflect the diversity of European situations.

Core-theme B: Alternative and innovative control

- Development of new bio-control tools should also include the development of new strategies for optimized application of both old and new biocontrol tools;

- Weather-driven models should be built also for bio-control and for the tri-trophic interactions (plant/pathogen/BCA) in order to support decision making for an optimal use of BCA;
- More focus is needed on bio-pesticides, elicitors, multiple plant defence primers although their efficacy in the field need to be assessed before their real use in IPM;
- To foster acceptance, alternative tools should be economically accessible for the farmer;
- The lack of PPPs cannot be considered as a driving force for change in crop protection practice when there the lack of other valid alternatives to chemicals;
- Involvement of agrochemical industry and farmers need to be specified for the development of innovative and effective alternatives to chemicals;
- A clear message to the policy makers is needed here to change the time of approval needed for low-risk and basic substances;
- Cultural and physical control methods need to be prioritized rather than bio-control which, rather than a lot of investment made over the last 40 years in Europe, yielded a few niche products;
- Co-operation between organic farming and IPM is needed to enhance a more systemic understanding on the development of new BCA;
- Pest resistance management and sub-topics are included in the cluster B in the long list of topics while in the text the related information is included in the cluster D.

Core-theme C: IPM in minor crops

- In addition to the need of PPP, need of breeding programs for minor crops need to be emphasized;
- Many non-European countries have IPM programs for minor crops and some of them have a strong collaboration. A link is needed with those countries;
- Inclusion of other stakeholders than the research community is needed;
- Minor Use within the ERANET should not be isolated from other clusters (for example A and B). Within these clusters priorities should be given to minor use problems as well;
- Lack of available PPP is main driver of change towards IPM solutions in particular for minor uses;
- SRA IPM and ERANET C-IPM should focus on practical and economically sustainable 'low risk' solutions;
- Involvement of stakeholders (farmers and industry) is essential for effective IPM solutions;
- The need for cooperation with the European MU groups need to be mentioned.

Core-theme D: Pesticide impact & IPM implementation indicators

- The multifactor perspective that emphasize socio-economic research should be included here;
- IPM indicators should be simple, based on a few inputs and calculated both at plot and regional levels;
- Assessment tools such as DEXiPM are needed here to measure trade-offs and impacts (economic, environmental and social);
- This is the most important theme in the SRA. Socio-economic performance that facilitates IPM implementation should be directed not only to producers but also to the entire value chain;
- A lot of potential indicators exist around farm financial performance, pesticide use, resistance development and eco-toxicological events. Beyond that, it is worth considering how the EU will know that its policy has been successful.