

Knowledge sharing activities: past and future

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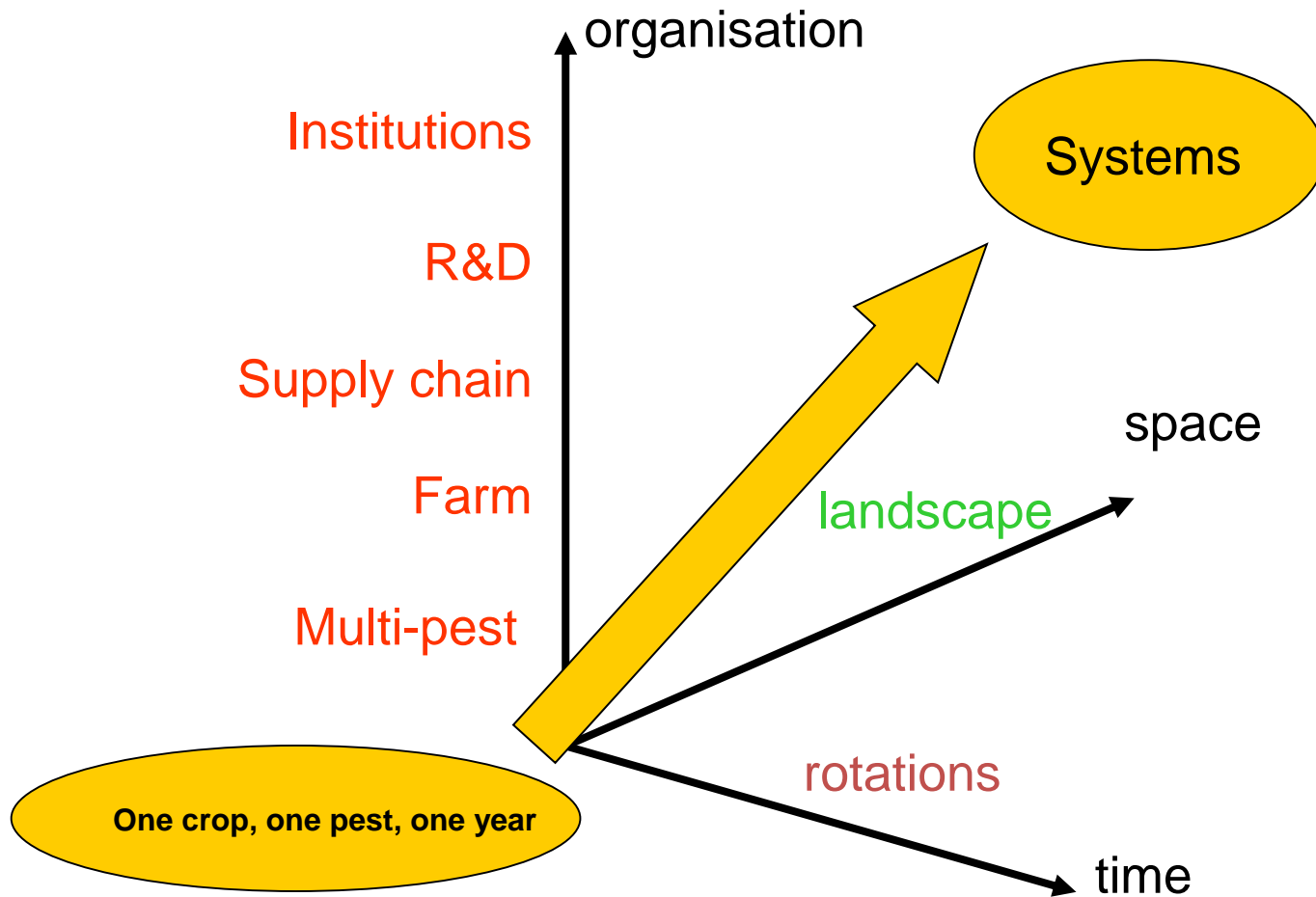
IPM is a flexible and dynamic process addressing multiple facets

“**Careful consideration of all available** plant protection methods and subsequent **integration of appropriate measures that discourage** the development of populations of harmful organisms and **keep the use of plant protection products** and other forms of intervention to levels that are economically and ecologically justified and reduce **or minimise risks** to human health and the environment” (EC 128/2009)

Challenges

- Defragmentation is the core challenge
 - Between disciplines:
 - Biology, ecology, agronomy, socio-economy
 - Between scales: the « systems » challenge
 - Between countries
- Genericity of research vs specificity of end-user solutions

The « systems » challenge



Knowledge sharing: a cornerstone

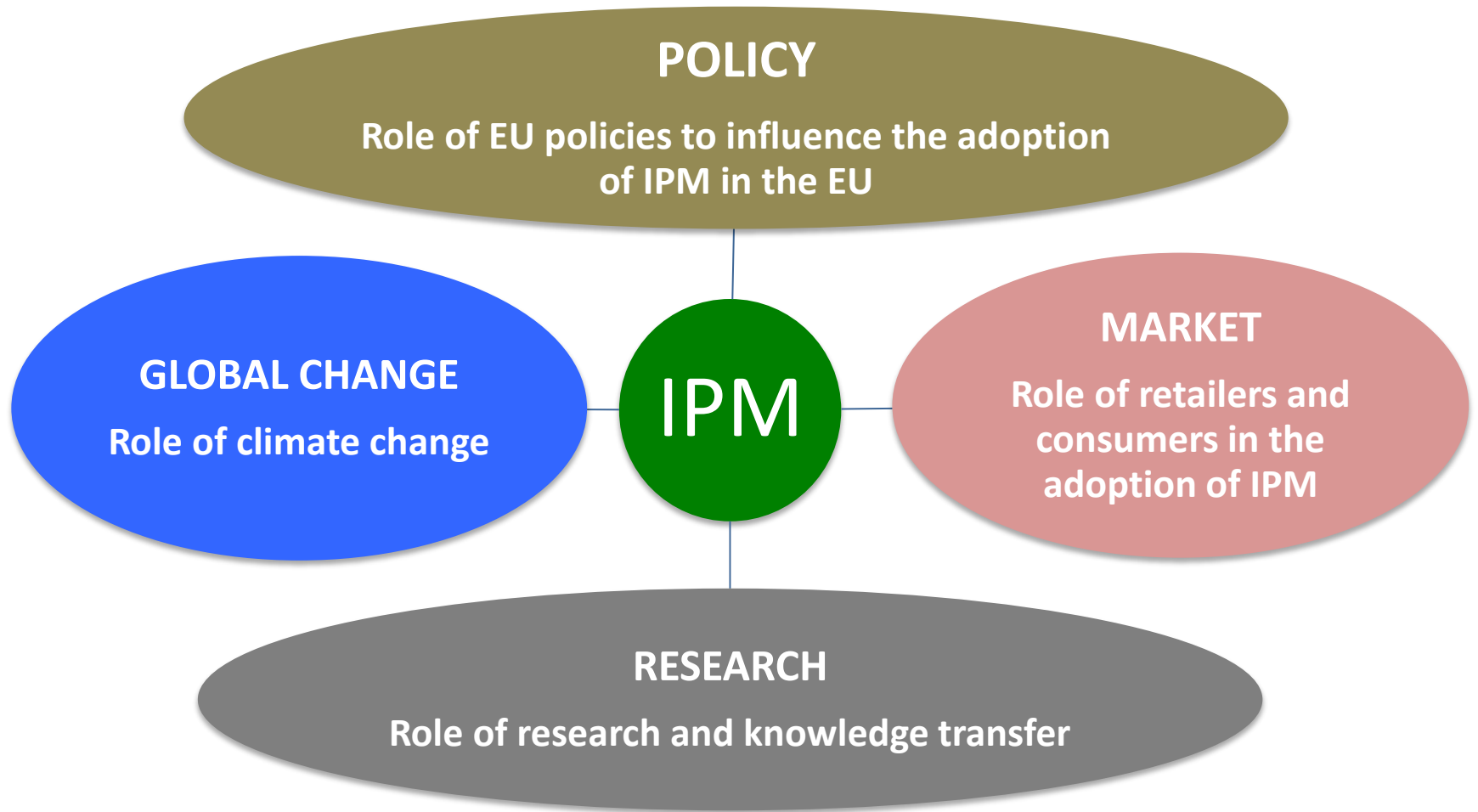
Knowledge sharing was identified as a key component of C-IPM activities to:

- Share existing IPM-related research programmes and priorities;
- Identify gaps and potential synergies between existing National programmes;
- Address the future of IPM in Europe;

Thematic workshops

- Address the future of IPM in Europe
 - Future challenges for IPM in a changing agriculture Berlin, (October 2014)
 - Role of existing and new technologies addressing the challenges of IPM (Paris, June 2015)
- Existing R&D IPM-related programmes (Poznan, January 2015)
- Strategic Research Agenda for IPM (Paris, March 2015)
- Biocontrol: challenges and priorities (Paris, January 2016)
- Networking demonstration farms (Bonn, May 2016)
- Breeding for IPM (Warsaw, July 2016)
- *Drosophila suzukii* (Thessaloniki, September 2016)

The IPM landscape: main drivers



Research and extension

- Current IPM research too much crop/pest specific oriented;
- Broaden the scope and put IPM in the context of resilient/sustainable systems;
- IPM should demonstrate that it is efficient, economically profitable and environment-friendly
 - « Simpler, Cheaper, Easier »

(Berlin workshop, October 2014)

Novel and innovative IPM tools and/or technologies

- Role of robotic technologies to boost IPM;
- Innovative and user friendly technologies for pest detection and monitoring;
- Advanced biotechnologies to breed resistant and/or tolerant plants.

(Paris, June 2015)

Breeding for IPM

- How to account for IPM when breeding resistance
 - Assess ex-ante reaction of pathogens due to deployment of genes
 - Breeding for crops (minor) or mixed cropping
- How can breeding help foster adoption of IPM strategies?
 - Towards a trait-based approach (architecture, competitiveness etc.)
 - Shift from breeding for gene to breeding for ecosystem
- Which breeding strategies for crop diversification?
 - Encourage public breeders to focus on minor crops
- Role of new breeding techniques
 - Genome editing techniques could speed up breeding techniques but would not necessarily increase the resilience
- Co-design breeding and IPM strategies
 - Participatory breeding might help a lot

Future knowledge sharing activities

- > Home
- >> About EuroWheat
- >> Pathogens
 - > Wheat diseases names
 - >> Stripe Rust
 - >>> **Race mapper**
 - > Races - Changes across years
 - > Virulence mapper
 - > Virulences - Changes across years
 - > Impact on yield
- >> Cultivars
- >> Fungicide resistance
- >> Wheat IPM tools and information
- >> News and Events
- > test

You are here: eurowheat.au.dk > Pathogens > Stripe Rust > Race mapper

RACE MAPPER

Races on single locations Races, frequency by country

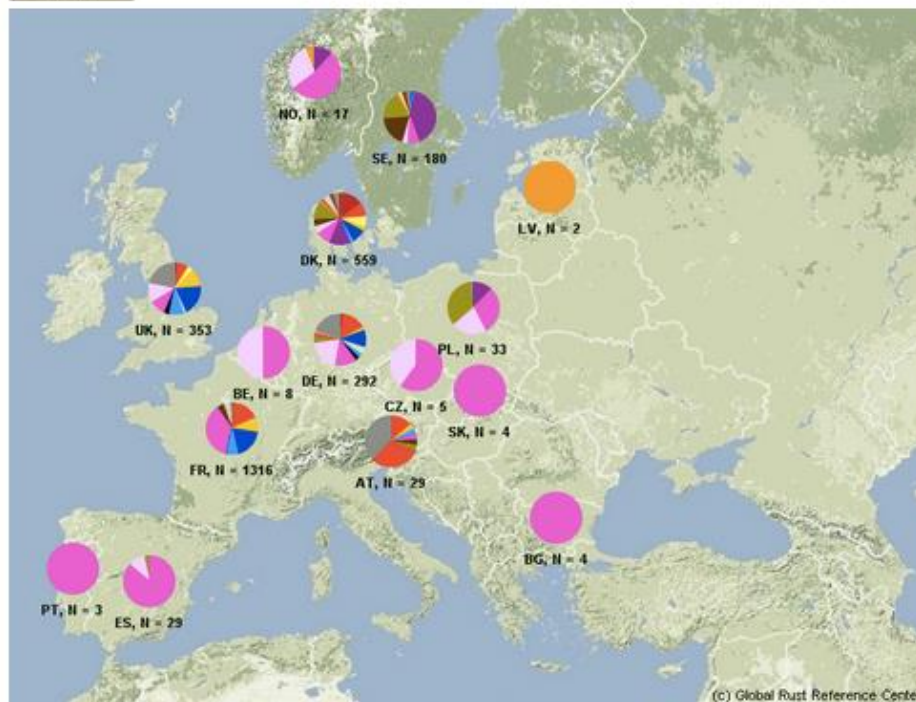
Mode Races Race groups

Continent Europe Africa & West/Central Asia East Asia South America North & Central America

Year All 2016 2015 2014 2013 2012 2011 2010 2009 2008 2007 2006 2005 2004 2003 2002 2001 2000

Show

Help



LEGEND	
Brigadier	{1,2,3,9,17,25}
Brigadier+V4	{1,2,3,4,9,17,25}
Madrigal/Lyrox	{1,2,3,6,9,17,25}
Madrigal/Lyrox+V4	{1,2,3,4,6,9,17,25}
Robigus	{1,2,3,4,9,17,25,32}
Robigus+V7	{1,2,3,4,7,9,17,25,32}
Oakley/Solstice	{1,2,3,4,6,9,17,25,32}
Oakley/Solst.+V7	{1,2,3,4,6,7,9,17,25,32}
Kranich	{1,2,3,6,7,8,9,17,25,32,Amb}
Warrior	{1,2,3,4,6,7,9,17,25,32,Sp,Amb}
Warrior(-)	{1,2,3,4,6,7,9,17,25,32,Sp}
Tulsa	{3,4,6,25,32}
Triticale2006	{2,6,7,8,10}
Triticale2015	{2,6,7,8,9}
Heneford	{2,3,6,7,8,25,32}
PatS1/S2+V27	{2,6,7,8,9,25,27}
PatS3+V2,V25	{2,6,7,8,25}
Non-wheat	[none]
Other	

Data provided by: Institut National de la Recherche Agronomique (France), Julius Kühn-Institut, Federal Research Centre for Cultivated Plants (Germany and Austria), National Institute of Agricultural Botany (United Kingdom) and Aarhus University (Denmark and Sweden).

Warrior and Warrior(-) races were not differentiated by INRA, France (2011-2015) and IJAR, Poland (2014).

Socio-economic drivers

- Analysis of drivers for IPM implementation among stakeholders (farmers, industry, advisers, consumers, etc)
 - Focus on “lock-in” effects to identify possible levers
 - Impacts other than economic that alternatives to pesticides may provide
- Analysis of public policies (legal framework, incentives, etc) related to implementation of IPM and/or reduction of dependence to pesticides
- Multi-criteria assessment approaches to understand and monitor how changes from conventional to IPM system affect environmental, economic and social criteria including farmers behaviours and constraints;
- Economic aspects of IPM viability, role of risk perception.

Added value of coordination

- Share a common vision of challenges related to IPM
- Anticipate (re-)emerging pests
- Test IPM solutions under diversified receiving environments
 - More robust strategies and economies of scale
- Avoid redundancy and share existing solutions
- Implement co-programming whenever relevant
- Foster transition to IPM in all member states

→ Involvement of all actors in the long-term is needed

C-IPM **Coordinated Integrated Pest Management in Europe**



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