

**SECTORAL AND GEOGRAPHICAL
MAPPING OF UPTAKE OF
ORGANIC PRODUCTION METHODS
& USE OF NON-CHEMICAL
ALTERNATIVES INCLUDING
BIOCONTROL TECHNOLOGIES**

● Agronomic practices

● Monitoring

● Physical control

● Biological control

INTRODUCTION

Integrated Pest Management means moving away from killing towards managing pest populations. Integrated Pest Management (IPM), if applied correctly, is a sustainable way to protect crops based on applying good agronomic practices to enhance plant resilience, the forecasting and monitoring of pest population development and the use of mechanical as well as biological alternatives to synthetic pesticides. Synthetic pesticides are then only used as a last resort in pest control. These approaches form part of a sustainable and regenerative agriculture system to preserve biodiversity and produce food for future generations. It builds on the principle of working with nature.

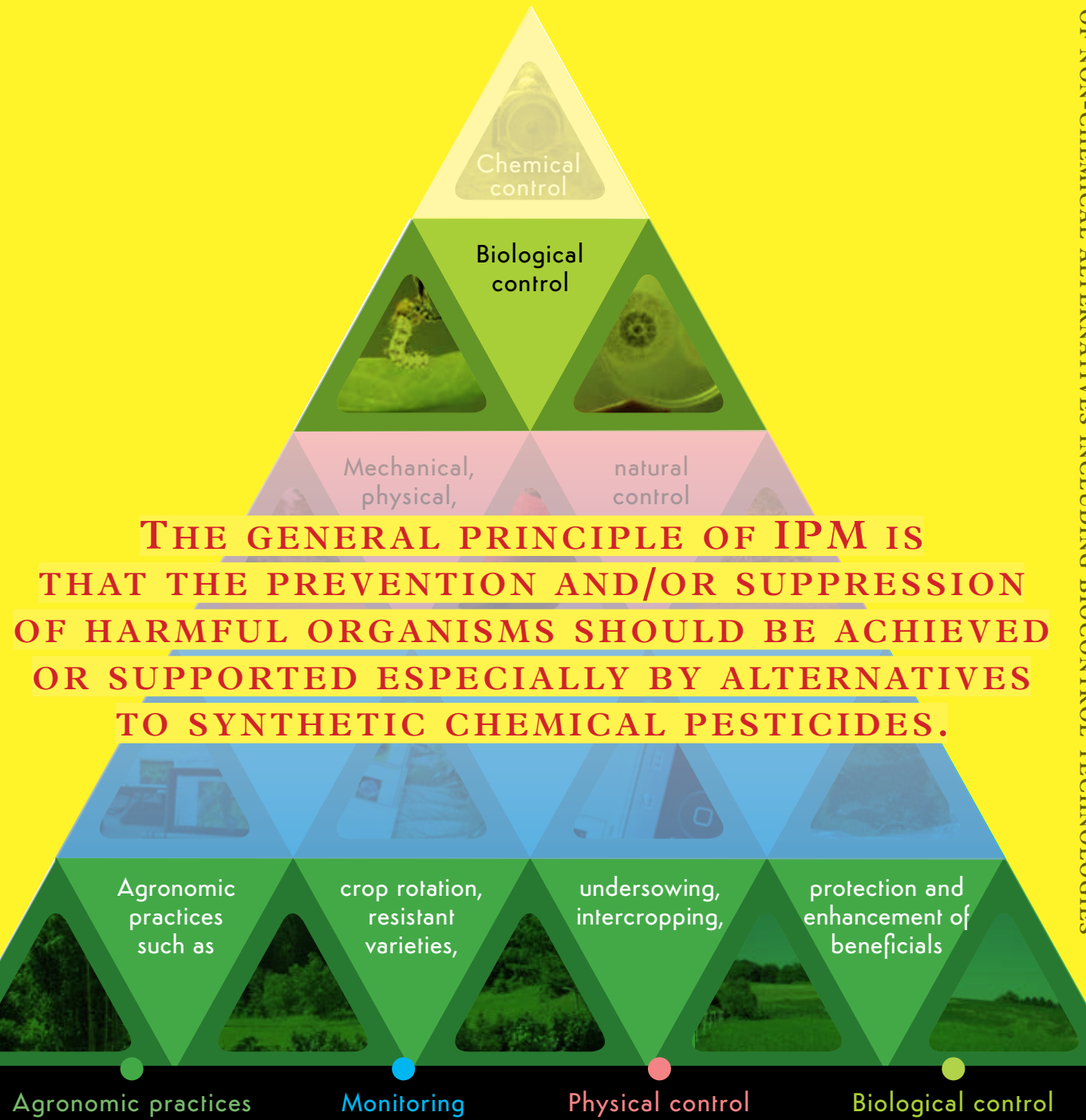
The principle of IPM is defined in the Directive 2009/128/EC on the Sustainable Use of Pesticides (SUD) by being based upon farmers applying agronomic practices like long crop rotations, cover crops, use of resistant cultivar, well designed seeding timetable, protection and enhancement of beneficial insects and utilization of ecological infrastructure both inside and outside the fields, and the use of biocontrol technologies.

These techniques need to be applied and thought in combination, not separately. That is the complexity but also the joy of being a farmer working with nature.

“WHEN YOU HAVE SOLVED ONE PROBLEM, ANOTHER ONE SHOWS UP. IT’S CALLED THE JOB... I THINK THAT IN TERMS OF THE CUT (PRUNING) SYSTEMS AGAINST FUNGAL DISEASE, THERE IS SOMETHING TO BE DONE.”

Luc Pellet — Wine-maker in Suisse Romande, Switzerland

The examples in this booklet illustrate how good agronomic practices and biological control methods can go hand in hand, allowing farmers to adopt more holistic approaches of IPM (applying an increasing combination of techniques from the IPM triangle), moving up the IPM ladder.



THE GENERAL PRINCIPLE OF IPM IS THAT THE PREVENTION AND/OR SUPPRESSION OF HARMFUL ORGANISMS SHOULD BE ACHIEVED OR SUPPORTED ESPECIALLY BY ALTERNATIVES TO SYNTHETIC CHEMICAL PESTICIDES.

The SUD provides that, from 2014, all farmers in the EU apply IPM but unfortunately this is far from successfully implemented. In 2017, the European Commission prepared a report evaluating how Member States have implemented the SUD, and among other things concludes:

“Integrated Pest Management is a cornerstone of the Directive, and it is therefore of particular concern that Member States have not yet set clear targets and ensured their implementation, including for the more widespread use of land management techniques such as crop rotation. ... the Commission will support the Member States in the development of methodologies to assess compliance with the eight IPM principles, taking into account the diversity of EU agriculture and the principle of subsidiarity”.

Member States should have improved their technical assistance to farmers in relation to development of forecasting models able to monitor pest¹, but has neither been able to fix any mandatory requirements for farmers to apply within the Common Agricultural Policy (CAP) nor been able to sufficiently inform about alternatives to pesticides within their farm advisory services, despite this being mandatory for Member States to do, again within the CAP².

Despite the low uptake there are pockets of success on which the farming sector can build. First of all, it is time that conventional farmers learn from the organic sector, but there is also a need to make sure that certain actors start recognizing the potential of certain non-chemical alternatives (such as pheromones) that have been very well developed in certain cooperatives and areas. It is time to understand what is not IPM but also what are now established techniques and not new innovations, such as the use of biological control in green houses and the use of pheromones in orchards and vineyards.

¹ EFSA report summary here:

www.pan-europe.info/sites/pan-europe.info/files/public/resources/activities/conferences/151119/20151119_hc.pdf

² https://ec.europa.eu/food/audits-analysis/audit_reports/

CLOSE TO 100% OF GREENHOUSES GROWING PROTECTED VEGETABLES USE BIOCONTROL GROWERS USE IT IN UP TO 90% OF THE CASES TO CONTROL PEST AND DISEASES



“OVER THE PAST TEN YEARS, WE HAVE REDUCED OUR USAGE BY 80%. WE APPLY PESTICIDES PERHAPS JUST ONCE RATHER THAN THREE TIMES. THIS IS A HUGE ADVANTAGE, BOTH FROM A HEALTH AND AN ECONOMIC PERSPECTIVE.”

Attilio Pecchenino — Vine-grower in Dogliano. Italy

“OVER THE PAST 30 YEARS, OUR COMPANY HAS MANAGED TO VOLUNTARILY REDUCE PESTICIDE USE BY 90%.”

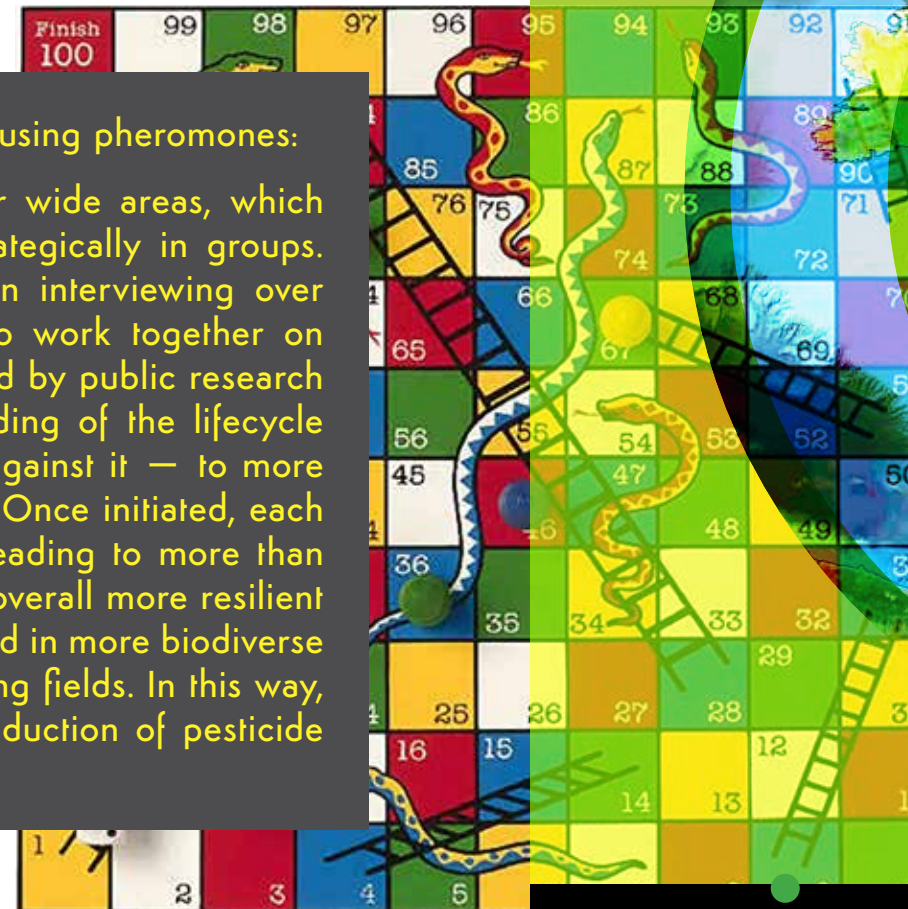
Marc Cocquyt — Fruit-grower in Flanders. Belgium

ON AVERAGE AROUND 20% OF EU VINE GROWING AREA (3.2 MIO HA) IS COVERED BY PHEROMONES



How to move up on the IPM ladder starting by using pheromones:

Pheromones work optimally when applied over wide areas, which therefore often encourage farmers to work strategically in groups. For each of the farmers' groups we have been interviewing over the years, we observed that once they start to work together on biological alternatives, often inspired and assisted by public research centres, they begin to develop their understanding of the lifecycle of the pest, therefore work with nature — not against it — to more effectively manage their farm and control pests. Once initiated, each group continued working further with nature, leading to more than the replacement of pesticides but a move to an overall more resilient biology- and nature-based agriculture that resulted in more biodiverse environments in the soil, crop and the surrounding fields. In this way, starting to work with nature allows a serious reduction of pesticide dependency over time.



Agronomic practices

Monitoring

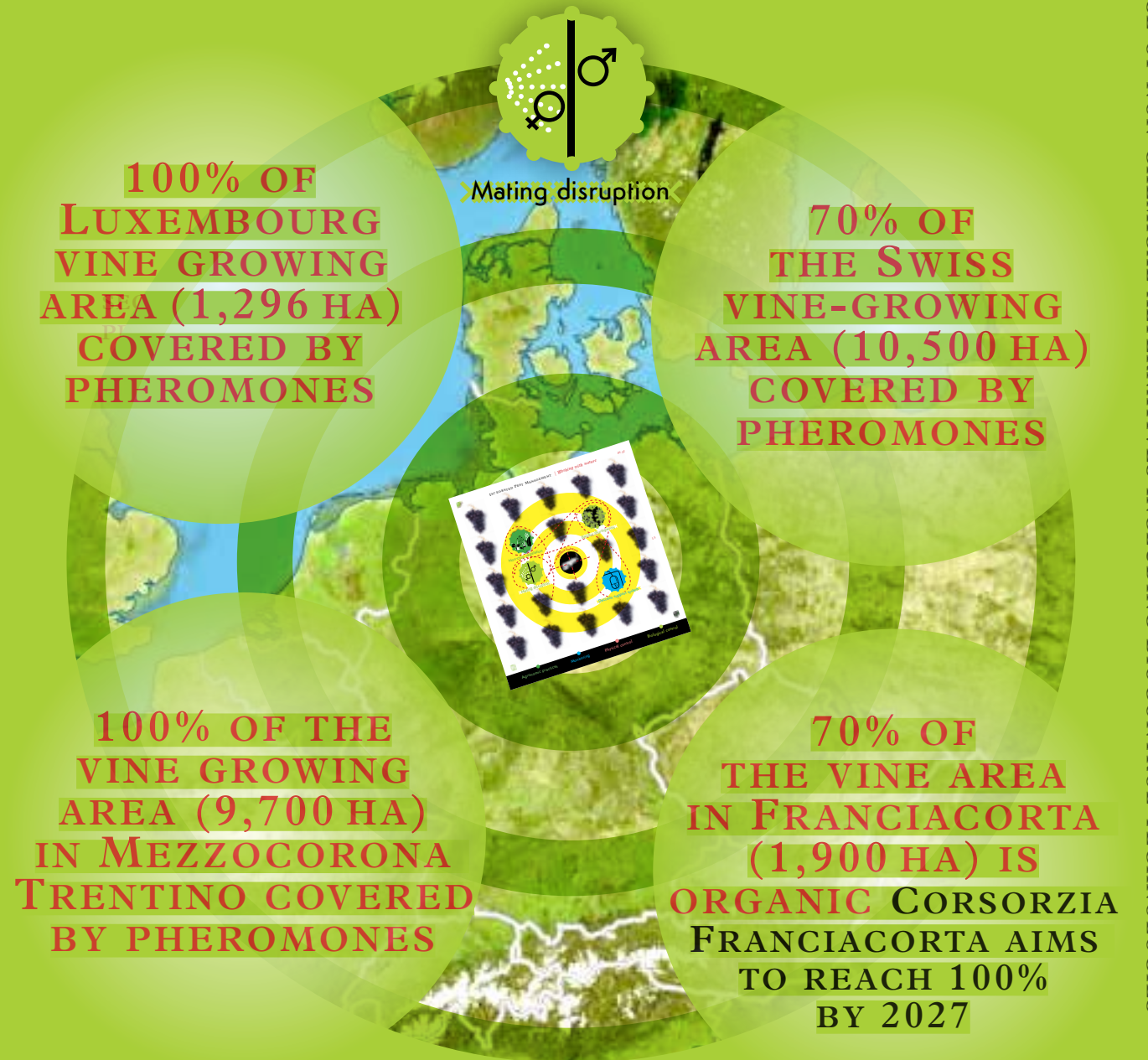
Physical control

Biological control

8 Agronomy is the key if we are serious about moving towards IPM. However, in a number of the reports that the European Commission has done to verify compliance of the SUD audits in the Member States³, it has been noticed that farmers, rather than applying better agronomic practices since the SUD, have been applying more restrictive agronomic practices. For instance, the reports mention that Danish farmers apply narrower crop rotations than in the past, that Swedish farmers no longer produce leguminous crops as the market has disappeared. However, it is fundamental that if the EU is serious about applying IPM, we must encourage farmers to apply good agronomic practices, meaning practices working with nature, practices that feed the soil and attract natural predators and beneficial insects, rather than focusing on short term profit. The next step must be that we start recognizing what is not IPM.

Over the past years, we have been filming a number of farmers, and all of them explain how starting to use alternative method and/or practice in the spirit of working with nature, has led them to adopt other practices to build up resilient systems and successfully reduce their dependency on pesticides.

³ https://ec.europa.eu/eurostat/statistics-explained/index.php/Organic_farming_statistics



This can apply to all sectors, including arables: groups of farmers can adopt good practices to manage weeds and insects without pesticides thanks to independent advice from agronomists, and the collective aspect creates a synergy that make farmers willing to go further.

In Normandie, France, a group of arable farmers from the Dephy Phyto network reduced their pesticides use by 50% following the advice of Bertrand Omon, agricultural advisor from the regional Chamber of Agriculture.

TO REDUCE YOUR USAGE, YOU NEED A CULTIVATION SYSTEM WHICH INVOLVES A NUMBER OF LINKED STEPS CARRIED OUT ONE AFTER THE OTHER. THIS INCLUDES FOR EXAMPLE ALTERNATING SPRING AND WINTER CROPS TO RESTRICT MOULD AND DISEASE AND USING VARIETIES WHICH ARE LESS SUSCEPTIBLE TO DISEASE... FOR WHEAT, I SOW DIFFERENT VARIETIES TOGETHER TO PREVENT THE ISSUES THAT ARISE WHEN YOU HAVE ONLY ONE SINGLE VARIETY"... I SOW MUCH LATER THAN USUAL TO PREVENT WEEDS FROM GROWING AT THEIR OPTIMUM TIMES."

Antoine Lambert — Cereal-grower in Fours-en-Vexin. France

"I ROTATE EVERY 9 YEARS BETWEEN 6 DIFFERENT CROPS. IT INVOLVES MECHANICAL WEEDING AND USING STAGGERED SOWING DATES TO PREVENT PROBLEMS WITH INSECTS AND DISEASES. IT ALSO INVOLVES MIXING WHEAT VARIETIES TO TRY TO POOL THE DISEASE RESISTANCES OF DIFFERENT VARIETIES AND MAKE USE OF ALL OF THEIR PROPERTIES."

Jean-Bernard Lozier — Cereal and protein-crop grower in Coudres. France

"I REORGANISED MY PLOT STRUCTURE INTO PLOTS OF NO MORE THAN 12 HA, SEPARATED WITH STRIPS OF GRASS... FROM THE THIRD OR FOURTH YEAR, YOU START GETTING A LOT OF BEETLES IN THE GRASSY AREAS WHICH EAT THE SLUGS AROUND THE CROPS."

Jean-Philippe Pétillon — Cereal-grower in Richeville. France

5% OF ARABLE CROPS USE BIOCONTROL TO CONTROL PESTS AND DISEASES FARMERS CAN ALSO CHOOSE AGRONOMIC PRACTICES THAT WILL INCREASE CROP RESISTANCE AND RESILIENCE



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Maximising the effectiveness of biocontrol is achieved by a holistic agroecological approach to farming. Buffer strips in farmland provide food for pollinators and reservoirs of beneficial insects that can augment the predation and parasitism of pests in the main crop. Additional food for predators can be placed in the buffer strips augmenting beneficial insect populations to create a “standing army” ready to invade the crop and suppress pests when they arrive. Traps that monitor the level of insect pests or weather stations that monitor crop conditions so that the timing of biocontrol can be optimized to maximise effectiveness and value for money for the farmer are key tools that when used alongside biocontrol technologies enhance its effectiveness and optimize the financials.

Ready-to-use biocontrol technology alternatives exist for several sectors, in particular horticulture and in greenhouses as well as a promising start in arable crops. We hope the testimonies we gave will be inspiring for farmers to change their practices, work together to maximise learning to work with nature.

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“THIS AGRICULTURAL SYSTEM ALLOWS ME TO SPREAD OUT MY WORKING TIME... MY WORK IS SPREAD OUT OVER THE YEAR, LEAVING ME WITH FREE TIME. SO, I NEVER HAVE TO FEEL STRESSED. AND THAT’S REALLY IMPORTANT. IT’S A GREAT LUXURY.”

Jean-Bernard Lozier — Cereal and protein-crop grower in Coudres. France

“WE MAKE USE OF THE FARM FROM A DIDACTIC POINT OF VIEW, TO MAKE PEOPLE UNDERSTAND THE ENVIRONMENT OF WETLANDS, THE IMPORTANCE OF MAINTAINING WETLAND ECOSYSTEMS IN A STATE OF GOOD QUALITY, AS WELL AS HOW THAT TIES INTO THE MATTER OF MANAGING TO MAINTAIN A BALANCE WITH GROUNDWATER, SPRINGS, SEEPAGE, AND THE VIRTUOUS USE OF WATER.”

Paolo Mosca — Organic rice-grower in Crescentino. Italy

“AS INDEPENDENT WINEMAKERS IN TRENTINO, WE HAVE SIGNED AN AGREEMENT WITH THE AGRONOMIC INSTITUTE OF SAN MICHELE, AND WE HOLD UPDATE AND FORMATION DAYS RELATED TO ORGANIC AGRICULTURE DURING THE YEAR. NOT ALL WINE GROWERS ARE ORGANIC HERE YET, BUT WE ARE ACCOMPANYING EVERYONE TO BECOME SO, ALSO THANKS TO OUR OWN EXAMPLE.”

Devis Cobelli — Organic wine-maker in Trentino. Italy

Finally, many of farmers engaged in an IPM or an organic approach are willing to inform the general public about their practices and will therefore be an important aspect in involving society at large, but also other farmers, in the ecological transition.

The filmed testimonies also show something more than alternative techniques. Many of them make it clear that when farmers start or return to work with nature, they also start feeling more respected by the surroundings, and some even feel less stressed:

“WHAT’S MORE, THIS SYSTEM HELPS ME TO MEET CURRENT SOCIETAL DEMAND FOR PRODUCTS PRODUCED WITH FEWER PESTICIDES.”
 Didier Duedal — Cereal-grower and cattler farmer in Orvaux. France

“WE ARE RESPECTING THE SOIL AND ANIMALS MORE, INCLUDING FOR FUTURE GENERATIONS, BECAUSE WE CAN’T KEEP GOING ON APPLYING SO MUCH PLANT PROTECTION PRODUCTS. I TAKE A GREAT SATISFACTION IN KNOWING THAT WE CAN ACT IN A DIFFERENT WAY WHICH RESPECTS NATURE’S CAPABILITIES. TO ME, THAT’S WHAT BEING FARMER IS ALL ABOUT.”
 Eric Odienne — Cereal-grower and cattle farmer in Chambla. France

“THE BORDERS HAVE ALSO BOOSTED THE IMAGE OF THE WHOLE SECTOR... NOW, WHEN YOU SOW THESE FLOWER BORDERS AROUND THE FIELD, YOU GET PEOPLE STOPPING. SEVERAL TIMES NOW, I’VE SEEN CYCLISTS STOPPING TO PICK A FEW FLOWERS... I CAN EXPLAIN TO PEOPLE WHY I’M DOING THIS. WHICH THEY ARE VERY GLAD TO HEAR. BECAUSE NOT ONLY ARE YOU REDUCING PESTICIDE USE, BUT YOU’RE ALSO HELPING MAKE THE LANDSCAPE MORE BEAUTIFUL.”
 Martin De Ruiter — Vegetable-grower in Hoeksche Waard. The Netherlands

TO MAKE THE ECOLOGICAL TRANSITION A PATH FOR EUROPE AND OVER TIME FOR OTHER PARTS OF THE WORLD, POLICY MAKERS AND POLICY MAKING AT ALL LEVELS – EUROPEAN, NATIONAL AND LOCAL – NEEDS TO SUPPORT THE EUROPEAN GREEN DEAL, PUTTING IT UP FRONT IN ANY POLICY AGENDA AND START IMPLEMENTATION NOW.

WITH THIS PUBLICATION, WE WISH TO HIGHLIGHT SUCCESSFUL EXAMPLES OF FARMERS APPLYING IPM PRINCIPLES THAT SHOW THAT SUCH A TRANSITION IS ALREADY A REALITY FOR SOME FARMERS IN SOME AREAS. WE HOPE THIS WILL INSPIRE OTHERS TO GET STARTED TOO, AND THAT WE FINALLY CAN START THE JOURNEY TOWARDS HEALTHIER AGRICULTURAL AND FOOD SYSTEMS.



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For more information on IPM visit our websites
www.low-impact-farming.info & www.ibma-global.org