

Farming with future: making crop protection sustainable

The project *Farming with future* works with parties with a vested interest to promote sustainable crop protection in practice. Besides developing new knowledge, it spends a good deal of its energy in the embedding of sustainable practices within relevant organisations, businesses and agrarian entrepreneurs in order to make these practices permanent features of their activities.

Farming with future (2003-2010), a collaboration between Wageningen UR and DLV Advies, is active in the entire crop production sector in the Netherlands. The project works together with entrepreneurs and stakeholders in the field to test, develop and promote strategies and methods for sustainable crop protection. The stakeholders in crop protection are mainly the parties that have signed the

crop protection covenant. These are the producers of crop protection products brought together under *Nefyto* and the dealers that form the organization *Agrodis*, the ministries of Economic Affairs & Innovation, and that of Infrastructure and the Environment, the Union of Water Boards (UWV), the united drinking water boards (VEWIN) and the agricultural organisations that form *LTO Nederland*.

Best practices

The knowledge column

Wageningen UR was commissioned by the Ministry of Economic Affairs, Agriculture and Innovation in 2004 to develop a classification system to make an inventory of the knowledge column in crop protection for the first research project via best practices to good practices. Best practices are integrated crop protection measures which are not yet used in the field by most parties but which have the potential to contribute to a reduction in environmental impact. They arise, in general, from current or finished research. By the term “good practices” we mean effective and feasible measures for widespread use in the field. A “best practice” only becomes a “good practice” if it is attainable for 70-80% of all growers. A sector specific list of best practices is drawn up and published every two years by Farming with future in consultation with *LTO* (2004, 2006, 2009). The project then tests and develops the best practices in the field. A number of them grow to become robust good practices; others are impeded by obstructions (work, risk, implementation, etc.) and have to be further worked on in research and/or in the field.

Examples from the 2009 best practice agenda for arable and vegetable crops

Arable farming:

- biomass sensors on the spraying machines to determine dosage when applying herbicides to defoliate potatoes,
- control strategies for fungal disease in grain and root crops,
- weed control in maize,
- guided control of thrips in onions,
- control of leaf fungi in sugar beet.

Open field vegetables:

- different aspects in strawberry cultivation: *phytophthora* control, testing *trianum* (new organic pesticide), organic soil disinfectant and cultivation on ridges,
- decision support systems for *stemphyllium* control in asparagus,
- guided control of thrips in leeks with the aid of perfumes.

Stakeholders have the ball in their court

Stakeholders have a direct (via business or personal contacts) or indirect (the atmosphere or climate which surrounds socially relevant theme and current issues) influence on the mind set and behaviour of entrepreneurs. In this way they can contribute towards the desired process of sustainability in crop protection. They can convince farmers of the usefulness and the need for sustainability and they can recommend good practices. Moreover, stakeholders determine directly or indirectly the pre-conditions for sustainability (laws, regulations, collaboration methods and how problems should be tackled, etc.) for today and for the future; together they form the “regime” in the crop protection system. Regime is a term taken from transition thinking and stands for the entire system of institutions, their networks, relationships and procedures. Together they “determine” the culture, how things are done, what the dominant procedures are; the written and unwritten rules. It is characteristic of the transition that agriculture is going through that traditional values and ‘certainties’ in the regime are disappearing. Under the influence of new issues and themes such as socially accountable entrepreneurship and sustainability, stakeholders in the regime are searching for a new interpretation of their changing roles and relationships. This is characteristic for system innovation. Farming with future wants to facilitate this quest by stakeholders and wants to promote any opportunities to stimulate the utilization of sustainable practices in the field.

The project *Farming with future* was designed to support the covenant targets in the area of “Promotion of innovation and improvement of management”. We see the effort and commitment of the vested interests as being essential to the process of sustainability (see box Stakeholders have the ball in their court)

>> Developing relevant knowledge

Farming with future's knowledge agenda consists of so called best Practices: promising sustainable methods and measures that still need to be tested in the field to make them ripe (effective and attainable) for practice. (see box Best Practices). *Farming with*



Farming with future tries out new techniques, such as hoeing equipment for the mechanical removal of weeds, in the cultivation of trees for urban areas - a key sector in Dutch horticulture.

future works on a total of about 30 new best practices annually in all different sub-sectors of the crop production sector. Most practices are tested for some years together with selected entrepreneurs and interested parties who can and want to work together for a particular measure. The testing and demonstration of best practices takes place on commercial farms, in study club groups or at research farms belonging to Wageningen UR. Many best practices have become good practices (see box Best Practices) and are disseminated in the agricultural network. *Farming with future* has described 65 good practices in a series of flyers and these have been widely distributed.

>> Knowledge circulation

Farming with future communicates with all interested parties in the regions and sectors where it is active: in total more than two hundred stakeholders. The aim of the talks is to explore the possibilities for common distribution of knowledge on more sustainable crop protection. Which measures can rely on support from the stakeholders and under what conditions? Can we fulfil these conditions together in order to facilitate the involvement of the stakeholders? In past years hundreds of collaborative activities have been launched in this way, varying from contributions at member evenings, articles in professional journals, publication of flyers and brochures as well as practical demonstrations, show days and informative meetings. The collaboration between entrepreneurs, stakeholders and *Farming with future* has in this way been the motivating force behind the distribution of sustainable methods and techniques.

>> Perspectives on sustainability

Farming with future builds on this collaboration by intensifying the bilateral and multilateral talks with stakeholders to establish what sustainability means to them, what their ambitions are in this respect and how that is implemented in their business practice and how this can affect entrepreneurs in the field. In this way, it becomes clear what the vested interests are and what criteria (the conditions which need to be fulfilled) must be met to ensure active involvement.

Farming with future uses all sorts of methods to bring stakeholders together and involves them in a common course of action. The confrontation with each other and the differing perspectives on the sustainability problem and the possible solutions, promotes self-reflection about positions, vested interests and the way in which these can be served. This method of working often offers an unexpected wealth of starting points for the exploration of opportunities for individual and/or coordinated action. Stakeholders

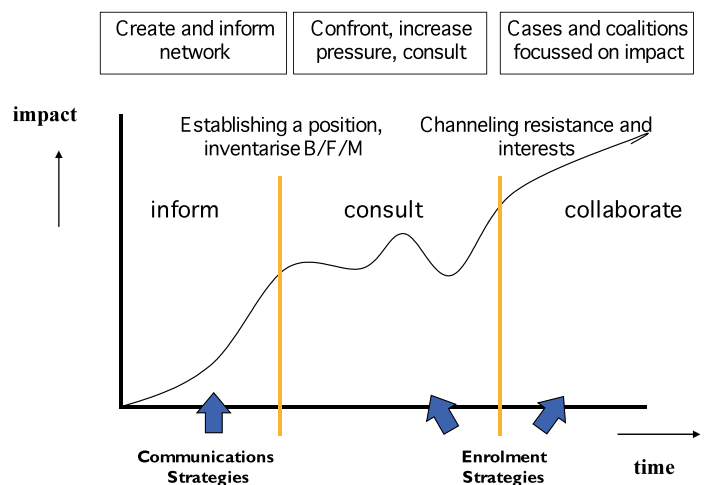


Figure: The stakeholder management process characterised in three phases. B/F/M stands for respectively Blockers, Floaters and Movers, see text.

ask questions of each other, call one another to account or make suggestions for concrete action.

Within each group of stakeholders we see individual businesses and organisations moving forward and creating new initiatives to give shape to sustainable behaviour. In many cases *Farming with future* is approached to work as a partner in their activities. Also more and more coordinated forms of action evolve from the established contacts offering stakeholders the perspective to contribute to the intended change in a coordinated manner in line with their own interests.

>> Stakeholdermanagement and enrolment

The methodological approach taken by *Farming with future* is called Stakeholder Management [see box] and is aimed at enrolment of the stakeholders: that they take (over) responsibility for sustainable crop protection and behave in more sustainable ways. The stakeholder manager fosters the integration of sustainability into the thinking and behaviour of businesses and organisations, allowing for their own identity.

Being a stakeholder manager is not an easy task. The stakeholder manager has to be committed to the change and have the personal drive to contribute to it. It requires new expertise and new process management skills. To this end, appropriate training courses were organised specifically for the stakeholder managers. Join our experience, stakeholder management is an excellent instrument to contribute to system innovations, because it allows for addressing the necessary organisational and institutional changes next to the technological ones.

Stakeholder management

Stakeholder management is a methodological approach designed to initiate and facilitate change processes by effectively influencing the stakeholders to act in their own interests in line with a well defined intended change target. A stakeholder is a person who has a felt interest in the outcome of the intended change (Donaldson and Preston, 1995), yet to be implemented. Stakeholder management is ultimately the outcome of the change process that counts for every stakeholder (Freeman, 1984). Stakeholder management originates in the private sector and is in *Farming with future* reworked for use in the public sector. The term management is here used in terms of organising, initiating, stimulating and facilitating. Stakeholder management is divided into three phases that are described below:

The inform phase:

- In this phase the stakeholder manager (STMA) communicates the need for change and the change objectives to all stakeholders. Stakeholders determine what is at stake for them, how it interacts with their interests and what their position in relation to this target/goal is or will be.
- The STMA informs himself on the attitude and behaviour of the stakeholders (individuals) towards the intended change and categorizes it by asking himself the following questions: Which stakeholders support the goals and are willing to make an active contribution (Mover), which ones have reservations or conditions (Floater) and which ones oppose the change because they have an opposite and therefore conflicting interest regarding the change targets (Blocker). He maps the position of the

stakeholders and their interests in a network and stakeholder analysis and re-evaluates it regularly as basis for the design of his actions.

- The STMA starts working with the movers to initiate new actions which promote the desired change. The STMA is keen to bring movers together in a leading coalition for change.

The consult phase

- In this phase the STMA consults the stakeholders about the change and their contribution. He uses three basic principles to influence stakeholders, 1) by increasing the pressure to become active by using confrontation; 2) by giving insight into the problems and possible solutions; and 3) by tempting stakeholders to get involved by claiming the need for their unique contribution (see also Cialdini, 2001). The final aim is to stimulate stakeholders to re-evaluate their position and interests and ensure that they become involved.
- Scenarios, breakthrough solutions and modes of actions are explored by the STMA and movers in order to find new feasible ways to contribute to the intended change. New activities are started. The STMA is omnipresent; he is facilitator, broker, and accelerator all at the same time.
- The blockers are specifically addressed and confronted in this phase. Their objections have to be dealt with to strengthen the solutions of the movers. Their cooperation is needed in order to ensure a sustainable change. The STMA has to find out how to incorporate their criteria in the search directions so that the change serves their interests as well.

The collaborate phase

- The stakeholders take over the responsibility for the change, it becomes their change. The new, more sustainable way of working that fits the stakeholders' everyday reality, the elaborated scenarios and fruitful collaborations of the consult phase, are rolled out to realise the change.
- The STMA now retreats to a more supporting role to coach the enrolled stakeholders in their activities in order to embed the change in their organisations and roll it out in their network.
- The STMA remains active to embed the change in the institutional networks. He however, only undertakes activities in close consultation with his stakeholders.
- In this last phase floaters will follow what now has become the general trend.

The STMA guides the stakeholders through the three phases from "the freedom of choice to the responsibility of choice". The intended change is considered necessary and stakeholders have interests that are linked to the change. The change cannot be realised without their professional input and support. In the process towards the intended change it is no longer possible to be indifferent. The stakeholder must get involved or at least make a conscious decision on their role and position. Stakeholder enrolment is the name for the process in which the stakeholders increasingly take over ownership of the change process. An enrolled stakeholder has a positive attitude towards the change, sees a role for his organisation and works hard to find feasible ways to contribute to the change by his actions and he also influences others in his network to become involved as well.