

## **Posters: Greening the CAP yourself – Agricultural knowledge exchange networks: Example network 1: “Let’s use half as much herbicides (SMS)””; Example network 2: “Pigs and landscape improvement”**

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**Abstract:** Agricultural knowledge exchange networks have become an widespread phenomenon in the Netherlands, since 2003. They are networks of farmers, who exchange their knowledge exchange voluntarily with a (sometimes wide) variety of others in order to contribute to the development of new knowledge and skills for the agricultural sector.

The networks are financially supported in the context of the EU Rural Development Programme and led by a professional process leader (project convenor).

Despite the disappointing advances of the EU policy to “green the CAP”, some farmers use these networks to take “greening” initiatives of their own. Here is an example of a group of contractors who have set their focus on reducing the herbicides use by half on their contracted farms.

**Keywords:** partnership-driven networks, multi-actor approach, operational groups, knowledge exchange networks, living networks, innovation stimulation, rural development support, EU, FP7, Horizon 2020, EIP, government support, tender regulations, regulation frame, public policy issues.

### **Example network group: “Let’s use half as much herbicides (SMS)”**

#### **Network, work meetings and herbicides use**

In the network three cooperating contractors have taken the initiative. Together they contract about 120-130 clients, covering about 5000 ha of crop land in the peat colonies of south-east Groningen, Netherlands, and across the border in Germany. Their method consists of a skilled precision row-sprayer operation (without GPS – GPS-control will be introduced in 2014), in connection with a second pass of hoeing (and sometimes ridging).

Although the row-sprayer is not a new type equipment in itself, the contractors feel that the row-spraying method is insufficiently developed, during the times that herbicides were still relatively cheap and not yet severely disputed.

When the contractors apply their method, they invite neighbouring farmers to attend to work meetings in the field (in 2014 by SMS), with the aim to draw conclusions together, about how to use herbicides in the specific circumstances of the place and the time, in order to be as economic as possible. Although it was, of course, the farmer who took the decisions about the use of substances in his fields, the contractors always used half of what they would have, if they had used a full field spray.

### *Work speed*

By some interested attendees the thought in advance prevailed, that the operation with the 12-row-sprayer would be slow. That thought was belied at the holding of 42 ha with large, flat plots. There could be worked very carefully there and yet an operation speed of ca. 4 ha/hour was achieved.

### *Follow-up Work*

On all plots follow-up work was necessary in the form of hoeing, after a week or more after spraying the beet rows. On the sandy soil plots ridging of the ground was also necessary. On the wet plot with the soil compaction spot targeted monitoring of structure damage was necessary.

### *Environmental Control*

In the project plan of the network it features that the environmental effects will be assessed in the course of the autumn of 2013 (after the harvest) from three perspectives: water quality, soil quality and the effect on flora and fauna. The results were not yet available for this poster.

Table 1: Overview of the type of herbicides used during the work meetings “Let’s use half as much herbicides (SMS)” in sugar beet production until between early June and July ,1 2013.

Nr	2013	Place	Ha.	Medium <sup>1)</sup>	Theme
1	June 10	Vriescheloo and Wedde	20	be-ex, ol, go	Dry conditions, already fairly large beets, partly after-sown beet (smaller); many problems with orache ( <i>Atriplex patula</i> )
2	June 10	Bellingwolde	6	be, ol, go, tr	Dry conditions, both sandy and clay soils, with on the clay part re-sowed beet
3	June 15	Vlagtwedde	18	Be, ol, go, tr	Large weeds, including Chamomile ( <i>Matricaria chamomilla</i> )
4	June 18	Oude Pekela	10	be, ol, go, tr	Beet sown with GPS; many and large weeds: orache ( <i>Atriplex patula</i> )
5	June 26	Wedde	4	be, ol, go, tr	Experiment: row treatment on sandy soils without any hoeing and ridging
6	June 27	Wedde	6.8	be, ol, go, tr, fp	Wet conditions, with one very wet spot: soil compaction and problems with cocksbur ( <i>Echinochloa crus-galli</i> )
7	July 1	Oude Pekela	42	be, ol, go, tr	Big lots, peaty soils

<sup>1)</sup> go=Goltix SC; ol=Oil (actirob); be=Betanal (fenmedifam); be-ex= Betanal expert; tr=Tramat; fp=Focus-plus

## **Experiments, discussions and conclusions**

### *From full field sprayer to row-sprayer*

If the beet growth is advanced and weeds are high and large, the row-sprayer may be the only solution to effectively hit the weeds. In all plots where there were many and large weeds the attendees pulled the conclusion that starting earlier with row-sprayer (and therefore stop earlier with the full field spraying or leave it entirely) would be probably best in all circumstances.

At one work meeting an extensive dispute rose among the attendees, whether the use of the row-sprayer should be included directly into everybody’s fixed work plan. However, there followed no single conclusion. Some attendees preferred to use their own full field spray for as long as possible, before they were willing to call the contractor for a treatment with the row-sprayer. Others gave emphasis on the positive results with the row-sprayer.

At another work meeting a farmer brought forward the convenience to know that the contractor has always a machine with row-sprayer ready to serve multiple farmers after another. That will

save him the effort of connecting and disconnecting a row-sprayer for use on a relatively small surface.

### *Spraying and hoeing*

At a plot in Bellingwolde an experiment is done with the weeding. Two weeks before the spraying with the row-sprayer the field was worked first with the hoe. At this meeting a discussion emerged about which is better: first spraying and then hoeing or vice versa. The overall conclusion was that you can better spray first (and early) with the row-sprayer. You need to use less substances and you can spray more accurately on the weed. A week later the weed gets visibly weakened, can easily be hoed.

### *Chamomile*

On one plot grew, among others, large chamomile. On this plot too little substance was deliberately sprayed, to destroy the chamomile completely. The motivation was that a bit of chamomile usually causes insignificant problems in the beet harvest. The harvest results of this plot were monitored specifically, in order to learn from the results.

### *Spring Meeting*

The results of the working sessions and the environmental impact will be discussed with both the participating and other interested farmers at a Spring meeting in May, 2014. At that occasion a new innovative 24-row-sprayer with GPS on the machine (partly subsidized by the provincial government) will be introduced. During the meeting the economic aspects will also be addressed.

## **Example network groups: “Pigs and landscape improvement”**

Since about 2005 several networks have emerged in the Netherlands, experimenting with various concepts of large range open air pig keeping. For making profits a mixed system, including landscape goals and special pork quality products are most suiting.

There are three principal systems:

- Making use of available space of forests, range or waste lands;
- Integrating pig keeping and in crop land grazing;
- Incorporating pig keeping in nature conservation improvement.

### **Domestic properties of pigs**

Domestic pigs attach themselves to people, places and habits. These properties make them much more suitable for directive management interventions than wild boar, who tend to roam around uncontrolled.

Domestic pigs make distinctions between “familiar” and “strange” people, mainly on the basis of sound (similar to dogs). The extent to which pigs express distrust to “strangers” depends on breed, the way of rearing, individual and the current status (adult boars and sows-with-piglets are more suspicious). Spotted Bentheim pigs, an indigenous German/ Dutch cross boarder breed, are notorious for their friendliness – and are therefore e.g. particularly suitable for social activity farms. However their robustness for being kept in forests is limited.

### **What is the interest of the arable farmers in this kind of pig keeping?**

*Commandeur and Hemke (2012 - unpublished)*

For the marketing of the agricultural products arable farmers must often guarantee the supplies nowadays – which is forcing them to overproduce. For an arable farmer, keeping pigs after the

harvest is a complementary situation, which can be interesting, provided that the efforts in the pig keeping management plays a subordinate role in the business.

*Choice for a business model involving pigs on arable farms*

1. The arable farm takes the reared piglets in ownership;
2. An agreement is made with the arable farmer for the temporary use of fields, or the crop residues, and for the animal care, while:
  - a. the reared piglets remain in the ownership of the supplier;
  - b. the reared piglets are sold in advance already, either to the butcher, or even directly to the final consumer.

*Choice for a system on arable farms*

- a. The crop residues remain on the field , and the pigs are pastured in high densities to remove the remains fairly quickly;
- b. The crop residues (e.g. stubbles) remain behind on the field, after which a green manure is sown and the pigs are pastured in low densities for a longer period, e.g. throughout the winter;
- c. The crop residues are harvested and stocked and the pigs are kept on a semi-permanent pasture, e.g. a stretch of waste land.

**Features of pig keeping from nature perspective**

*Dort and Commandeur (2010)*

- Pigs can play a positive role in nature landscape improvement, if kept in low densities with abundant space.
- Because pigs can be managed so well, they are ideally suited, for example, to be used for just a part of the year or in a circulation system on various terrains in different seasons. This allows for specific field management, and if so preferred, even without the need for people to enter the site.
- At artificial high densities of commercial pigs kept in an electrical fenced area, there is insufficient self-regulation of the system and the potential of the growth and composition of flora and fauna may get poorly expressed.
- Pigs can be used well for landscape development of suffocated soils, on terrains overgrown with grasses, on stubble, and in forest meadows, if the management is committed with thoroughness. The pig farmer has to take in account the season, the quality of the soil, the vegetation, and the natural system. At the same time, he must ensure the health and welfare conditions for the pigs.
- When pigs are kept in a pasture system, is important to keep a close watch on their protein and mineral balance. Adjusted supplement feeding may be important for the pig's health.

**Bibliography**

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