Developments on Precision Agriculture and Information Management in The Netherlands and Europe[1]

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Agri-food enterprises operate in a complex and dynamic environment. To meet increasing demands of consumers, government and business partners, enterprises continuously have to work on innovations of products, processes and ways of cooperation in agri-food supply chain networks (AFSCN). Information exchange for communication in the supply chain (e.g. certification) and process control plays a crucial role in this. From several research and development projects in Europe and specifically in The Netherlands, it was concluded that especially information exchange around the farm management system is a bottleneck. This concerns information exchange within the farm with new devices from the area of precision agriculture (e.g. yield mapping, biomass sensors) and between the farm and other stakeholders in the supply chain.

Beside farm management systems, there are many other systems available for decision support, monitoring, registration, etc. However, usually they cover just one aspect of farming (e.g. finance, nutrients, etc.) and do not account for the integral, complex everyday situation a farmer is faced with. Besides, they usually do not cover the complete plan-do-check-act management cycle.

It can be concluded that the problem is not primarily a matter of software engineering, database integration or scientific modelling, but it is about integration of information that is generated by business processes. At the same time we have to deal with an installed base of computer systems that cannot easily be replaced. Therefore the approach for agricultural software development should focus on organizational issues in the first place, going hand-in-hand with software development. This means that the actual business processes should be driving and the business partners themselves should be kept in the lead of development and not for example programmers, scientists, etc.

Based on this starting point, several public-private partnerships, amongst others on precision agriculture, were setup, in which the partners from agri-food business (farmers, suppliers, processors, etc.) are in the lead of development. They supplied their own business cases (e.g. variable rate fertilizer application, benchmarking, electronic registration, etc.) and in a program context it was tried to create coherence between the various problems and systems that were used. Technically, a shared vision was created that is based on a business process modelling and service-oriented approach. This means that the actual business processes are starting point and they are supported by loosely coupled components that are made available through the internet. This idea is comparable to the 'app store' of Apple. Additionally, a Living Lab was created to facilitate an open innovation approach. Here, business partners, software developers, researchers and others virtually cooperate on developing new components or 'apps'. This is done at a national level in The Netherlands, and at a European level in the agriXchange project, which focuses on harmonizing different standards that are used. In a new EU-project, called SmartAgriFood, several EU partners work on Smart Farming, Smart Agri-Logistics and Smart Food

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[1]In: Powrie, J., Bloomer, D. (Eds.), LandWISE 2011 conference: Precision Spending - putting your dollar where it counts. 11-12 May 2011, Havelock North, New Zealand.

Awareness in the total context of the Future Internet Public-Private Partnership program of the EU. Especially these two projects could form a good basis for future cooperation with New Zealand.