

Drivers of successful transitions to new activities by farmers

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Summary

The key deliverables for this project are twofold:

- Three scientific publications that present this project's contribution to:
 - our understanding of transitions in agriculture and horticulture; and
 - entrepreneurship literature.
- A database that provides an infrastructure for continuous research on entrepreneurship and transitions by Dutch farmers and horticulturalists.

More detailed (intermediate) goals and deliverables are discussed in the report

Three papers were written for publication in scientific journals. All papers are delivered to Transforum, but should be treated confidentiality to avoid problems in the review and publishing process. One paper has been submitted to "International Journal of Entrepreneurial Behaviour & Research" and was returned with a request for revisions. Another paper was accepted for and presented at the 24th RENT (Research on Entrepreneurship and Small Business) conference. The third paper is still work in progress.

A questionnaire was administered to 1359 farmers and horticulturalists participating in the Dutch Farm Accountancy Data Network (FADN). The questionnaire provided self-reported data on entrepreneurial proclivity and strategy from 616 respondents. The accountancy network is a representative sample of all Dutch farmers and horticultural growers and provides data about several hundreds of firm-specific items such as firm investments, firm growth, gross turnover, and (absolute and relative) economic and environmental performance.

This report provides public information about the goals of the project, activities performed, results of the research, societal implications, resulting publications, project deliverables, and participants.

Goals

Farmers and horticulturalists need to change their production methods to achieve a more sustainable agricultural production system. The goal of this project is to understand which farmers successfully adapt their product and/ or production methods. This project diverges from adoption and transition models that are common in agricultural literature and explores and contributes to the growing body of literature on entrepreneurship.

Literature on entrepreneurship has been developed largely outside agriculture. However, many themes explored in the entrepreneurship literature also seem relevant in agriculture and horticulture. Such themes include entrepreneurial traits, capabilities, and behaviours; social competencies and social networks; and entrepreneurial strategies. This research project identified whether these themes contribute also to successful transitions by farmers and horticulturalists. Results can be used to support farmers and horticulturalist in their choice for more sustainable production methods that match their entrepreneurial strengths.

Key deliverables of this project are 3 scientific publications that present this project's contribution to our understanding of transitions in agriculture and horticulture; and general entrepreneurship. Moreover, a database is created that provides an infrastructure for continuous research on entrepreneurship and transitions by farmers and horticulturalists.

In addition intermediate goals and deliverables were formulated. Table 1 gives an overview of the deliverables, a brief description of the results, and a reference to the scientific publications of this project for further details. The results also are elaborated, below.

Structure

This project started with an analysis of cases where farmers and horticulturalists evolved to more sustainable products and production methods. These cases were compared with literature on innovation in agriculture and entrepreneurship to identify gaps in the literature. This part of the project resulted in the first three deliverables of the project (i.e. Case descriptions of transitions to sustainable activities; preliminary analysis of large initiatives focusing on transition towards sustainability at the farm level and Feedback on conditions and policies aiming at transition; and identification and operationalization of drivers of the transition to sustainable activities at the farm-level). These deliverables were used to write the paper about “Driving forces behind entrepreneurial behaviour in the farming sector” (Lans, Verstegen, and Verhees, Submitted).

Concepts that were identified in the literature and that could contribute to our understanding of transitions to more sustainable products and production methods of farmers and horticulturalists were adapted to the agricultural context. These concepts include innovativeness, risk taking and proactiveness as entrepreneurial traits, capabilities and behaviours, social competencies, and strategies. Measures for these concepts were developed and tested for validity and reliability.

A questionnaire was developed and administered to 1359 farmers and horticulturalists participating in the Dutch Farm Accountancy Data Network (FADN). This accountancy network provides a representative sample of all Dutch farmers and horticultural growers. A major advantage of making use of the FADN is that the self-reported data on entrepreneurial proclivity and strategy can be related to several hundreds of other firm-specific items such as firm investments, firm growth, gross turnover, and (absolute and relative) economic and environmental performance. Moreover, it is possible to repeat the research and thus create panel data that is able to answer fundamental questions entrepreneurship about causalities. This part of the project resulted in the following deliverables: a sampling frame of farms/farmers in Dutch agriculture that allows for the connection to other data bases, particularly BIN (Bedrijven informatienet Land- en Tuinbouw); and a dataset containing the hypothesized drivers of the transition to sustainable activities at the farm-level. The sample is described and the dataset is used in Verhees, Lans and Verstegen (Work in progress) and Verhees, Verstegen and Lans (2010).

The data from the questionnaire were used to explore two questions. First, do the concepts identified in our case studies and in the entrepreneurship literature contribute to the performance of Dutch farmers and horticulturalists? Second, are these concepts related to entrepreneurial strategies?

Three papers were written for publication in scientific journals that describe the insights gained during this project. One paper has been submitted to “International Journal of Entrepreneurial Behaviour & Research” and was returned with a request for revisions.

Another paper was accepted for and presented at the 24th RENT (Research on Entrepreneurship and Small Business) conference. Moreover, a seminar was organised to present all three articles to key stakeholders of Dutch agriculture and horticulture.

Efforts to publish the results in scientific journals will continue after the project has finished, because this is in the interest of the participants. Moreover, participants are looking for projects and partners to explore the potential of the database created in this project.

Finally, the papers resulting from this project were presented to 24 stakeholders in a workshop. Stakeholders represented were: researchers (Lei, PPO, Wageningen University), farmer representatives (ZLTO, LTO, LLTB, NAJK), governments (LNV), agricultural consultants, banks, and food- and agribusiness firms.

Summary of the results

During the last decade researchers and governments have emphasized the importance of entrepreneurial behaviour in agriculture for the transition to more sustainable products and production methods. However, only a small percentage of owner-managers show truly entrepreneurial behaviour. A wide array of factors has been suggested, explaining why some owner-managers develop entrepreneurial behaviour, but evidence is fragmented and studies are difficult to compare.

Our study presents a literature review and an empirical study to elicit the driving forces behind entrepreneurial behaviour in agriculture. The results illustrate four typical forms of entrepreneurial behaviour or development pathways. Moreover, the results confirm the importance of many individual and situational factors for entrepreneurship in agriculture that are known from general entrepreneurship literature. However our results also illustrate unique features of entrepreneurial behaviour in agriculture. The role and development of social competence in entrepreneurial behaviour in agriculture was particularly noteworthy.

Entrepreneurial behaviour is important for more sustainable agriculture because it is expected to improve farm management and thus performance. Empirical evidence for a positive relationship between entrepreneurial proclivity (EP) and performance across farmers or horticulturalists, however, is scant. Consequently the importance of an EP for the performance of Dutch farmers and horticulturalists is questioned.

Our research shows that EP has a positive influence on the performance of farms, which supports the advice to farmers and horticulturalists to be entrepreneurial. Effect sizes (i.e. correlations) in our research ($r = 0.31$) are comparable to effect sizes found for other micro firms ($r=0.35$) and high compared to average effect sizes ($r=0.242$). Moreover, our research indicates that EP had a negative influence on the performance of greenhouse horticulture in 2009. This year showed extremely low results for green house horticulturalists. Thus our research gives a first indication that EP makes firms more susceptible to fluctuations in performance, which is in line with their proclivity to take risk. However, more research is required to confirm this.

Preliminary results of our analyses indicate that social competences of farmers and horticulturalists influence their performance stronger than both EP and market orientation. Further research, combining our data with data from the Dutch Farm Accountancy Data Network (FADN), should explore further the mechanism behind this relationship.

There is a growing consensus that one element of entrepreneurship is the identification and pursuit of business opportunities. However, this does not give much insight into the business strategies that entrepreneurial business owners choose compared with less-entrepreneurial business owners.

Our results demonstrate empirically the relationship between entrepreneurial proclivity of small business owners and their business strategies. EP obviously stimulates strategies focussed on new activities, but also strategies focussing on increases in scale, forward and back ward integration, and cooperation with customers. EP inhibits strategies focussed on decreasing debts, decreasing costs, and increasing quality. Finally EP does not influence strategies focussed on increasing corporate social responsibility. The influence of EP on strategic choices is similar to the influence of a market orientation, except that market orientation reduces the focus on increasing scale.

Surprisingly, our results show that strategies do not mediate the relationship between EP and performance; EP influences performance independent of strategic choices, which suggests that EP influences operational decisions.

Societal relevance

The project has shown that many concepts from the entrepreneurship literature are applicable in agriculture. Moreover, many hypotheses derived from the general entrepreneurship literature were confirmed using data from farmers and horticulturalists. This suggests that policies that effectively stimulate innovations and transitions in other industries should also be considered in agriculture.

The project contributes to our insight about the role of entrepreneurship for implementing new, more sustainable, activities. Implementation of new activities at the farm level is crucial for Transform's ambition toward a more sustainable agriculture. Our results show that entrepreneurial proclivity stimulates new activities in agriculture and that it contributes to economic sustainability and, thus, the livelihood of rural areas. However, our results also show that new activities pursued by entrepreneurial farmers and horticulturalists are not necessarily more sustainable from a societal point of view.

The project has established an advanced database consisting of variables that drive transition to new activities by farmers. This dataset is connected to the Dutch Farm Accountancy Data Network (FADN) and thus can be used to answer more and new research question about entrepreneurship in agriculture. These data will be analysed by alliances of project participants and other scholars. Most project participants have extensive personal networks of people working in the field of entrepreneurship, and innovation in agriculture. The database created in this project offers excellent opportunities to explore new scientific research questions and queries by policy makers.

Publications

- Verhees, F.J.H.M, T. Lans, and J.A.A.M. Verstegen (working paper) Entrepreneurial Proclivity and Performance in micro firms: the cases of Dutch agriculture
- Verhees, F.J.H.M, J.A.A.M. Verstegen, and T. Lans (2010) The relationship between entrepreneurial proclivity, and business strategies of small business owners in agriculture and horticulture, RENT XXIV - Reseach in entrepreneurship and small business, Maastricht, 17 November 2010
- Lans, T., J.A.A.M. Verstegen, and Verhees, F.J.H.M (Submitted) Driving forces behind entrepreneurial behaviour in the farming sector, International Journal of Entrepreneurial Behaviour & Research
- Verhees, F.J.H.M.; Starre, B. van der (2008) De succesfactoren voor een geslaagde productinnovatie: de theorie gekoppeld aan een praktijkvoorbeeld *Onder Glas* 5 (8). - p. 11 - 13.

Project deliverables

Table 1: Project deliverables

Deliverable	Result	Output
Case descriptions of transitions to sustainable activities	Transcripts of interviews with 13 owner-managers based on critical incidence methodology	Lans, Verstegen, and Verhees, (Submitted)
Preliminary analysis of large initiatives (Koda, Melkvee academie, etc.) focusing on transition towards sustainability at the farm level. Feedback on conditions and policies aiming at transition.	Results confirm the importance of many individual and situational factors known from general entrepreneurship literature, but also illustrate unique features of entrepreneurial behaviour in farming	Lans, Verstegen, and Verhees, (Submitted)
A sampling frame of farms/ farmers in Dutch agriculture that allows for the connection to other data bases, particularly BIN (Bedrijven informatienet Land- en Tuinbouw).	A sample of 1359 firms was drawn from firms participating in the Dutch Farm Accountancy Data Network (FADN).	Verhees, Verstegen, and Lans (2010); Verhees, Lans, and Verstegen (working paper)
Identification and operationalization of drivers of the transition to sustainable activities at the farm-level	Measures for Entrepreneurial proclivity, market orientation, social competence (not included in the publications, yet), and strategy were operationalized and their measurement properties were tested.	Verhees, Verstegen, and Lans (2010); Verhees, Lans, and Verstegen (working paper)
A dataset containing the hypothesized drivers of the transition to sustainable activities at the farm-level will be made publicly available by LEI. Moreover it will be possible to combine this dataset with data from BIN (Bedrijven informatienet Land- en Tuinbouw).	Questionnaires to measure entrepreneurial proclivity, market orientation, social competence, and strategy were returned by 621 participants in the Dutch Farm Accountancy Data Network (FADN)	Verhees, Verstegen, and Lans (2010); Verhees, Lans, and Verstegen (working paper)
A conceptual framework about drivers of the transition to sustainable activities at the farm-level. These drivers may be farm characteristics, farmer characteristics, (perceived) characteristics of the sustainable activity, and networks.	To elicit the driving factors behind entrepreneurial behaviour (i.e. the transition to sustainable activities) person-situation research is used as a starting point	Lans, Verstegen, and Verhees, (Submitted)

<p>Three scientific articles, as well as presentations at scientific conferences, on the most prominent conceptual models and their empirical verification, to be submitted to peer-reviewed, international journals in the fields of agricultural economics, small business management and entrepreneurship, and marketing.</p>	<p>Verhees, F.J.H.M, T. Lans, and J.A.A.M. Verstegen (working paper) Entrepreneurial Proclivity and Performance in micro firms: the cases of Dutch agriculture</p> <p>Verhees, F.J.H.M, J.A.A.M. Verstegen, and T. Lans (2010) The relationship between entrepreneurial proclivity, and business strategies of small business owners in agriculture and horticulture, RENT XXIV - Reseach in entrepreneurship and small business, Maastricht, 17 November 2010</p> <p>Lans, T., J.A.A.M. Verstegen, and Verhees, F.J.H.M (Submitted) Driving forces behind entrepreneurial behaviour in the farming sector, International Journal of Entrepreneurial Behaviour & Research</p>	
<p>Communication of the results to industry and stakeholders, such as farmers, farmer's organisations, the ministry of agriculture, nature and food quality, and agricultural suppliers.</p>	<p>The papers resulting from this project were presented to 24 stakeholders in a workshop on 7 october 2010.</p> <p>One (preliminary) case study was published in a professional journal: Verhees, F.J.H.M.; Starre, B. van der (2008) De succesfactoren voor een geslaagde productinnovatie: de theorie gekoppeld aan een praktijkvoorbeeld, Onder Glas 5 (8). - p. 11 - 13.</p>	<p>Verhees, Verstegen, and Lans (2010)</p>

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