



Searching for entrepreneurs among small business ownermanagers in agriculture



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ABSTRACT

The relationships between entrepreneurial competence, competence development and entrepreneurial performance in small firms represent an area that has fascinated researchers for decades. Identifying such linkages is also important for agricultural research and practice. In this study modern concepts of individual competence were integrated with entrepreneurship and organizational learning theory, leading to the following research question: How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers develop and use specific entrepreneurial competence? A multiple-source case study was conducted in which quantitative and qualitative data from 19 horticultural firms in the Netherlands were combined. Based on the differences between high- and low-performing firms, seven propositions were formulated that further specify the relationships between entrepreneurial performance, the owner-managers' competence and the development of this competence. The results indicate that the relationship between entrepreneurial performance and competence is influenced by business goals and the owner-managers' competence awareness. It is proposed that entrepreneurial performance is correlated with the development of competence associated with the first phase of the identification and pursuit of an opportunity. Furthermore, the results suggest interdependence between existing competence and competence development within competence domains (horizontal development), and between competence domains (vertical development).

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1. Introduction

What is entrepreneurialism in agricultural firms, and how is it learned and developed in a sector traditionally dominated by family firms, a production orientation, protectionism and an innovation infrastructure in which knowledge used to be freely available? Entrepreneurialism in agriculture is often equated with a particular role or style of farmer/horticulturalist which focuses on gaining profit, efficiency, specialization, expansion and optimization of management [1,2]. Entrepreneurs are thus solely portrayed as money-driven, efficiency-orientated, optimizing managers. This representation, however, only partly reflects the conceptualization of entrepreneurship which has gained ground over the last decennium among entrepreneurship scholars, who see entrepreneurship as the scholarly examination of the processes of identification, evaluation and pursuit of opportunities, including the individuals who identify, evaluate and pursue them [3]. A focus on the identification and pursuit of opportunities as the core of entrepreneurship

emphasizes the creative, alert, pro-active and networking aspects of entrepreneurial activity, which proved to be a rich venue for studying entrepreneurial learning and development [4–6]. What is more, a conceptualization like this opens up the possibility of studying other forms of entrepreneurship aside from new start-ups [7], such as innovation and portfolio entrepreneurship in existing firms [8].

Identification and pursuit of entrepreneurial opportunities are (also) considered to be important processes for agricultural firms [9–11]. Through these processes farmers and growers are able to effectively respond to changes in the policy environment, markets, competition, technology, societal demands and sustainability. It can be observed from specific, often anecdotal, examples in daily practice that some farmers/growers seem to be quite successful in developing themselves as 'entrepreneurs' as conceptualized above, for instance through diversification or product innovation. However, it is not clear what they have learned in this process and whether this learning is indeed related to performance. To contribute to current understanding of entrepreneurialism in agriculture, the following overarching research question in this paper was addressed: *How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers*

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develop and use specific entrepreneurial competence? In other words, how are entrepreneurial competence, its development and entrepreneurial performance related in small agricultural firms?

This question is intriguing from a scientific as well as practical point of view. From a scholarly perspective, there is a growing body of research that acknowledges the importance of moving beyond classical entrepreneurial human capital variables (i.e. education and prior experience) in explaining performance, for instance by focusing more on cognitive abilities, social skills and behaviours [12,13]. Furthermore, researchers stress that learning and development of entrepreneurial human capital by owner-managers of existing small firms has been a neglected area of research [14]. From a practical point of view, entrepreneurial learning and development requires that owner-managers have insight into their own entrepreneurial profile, strengths and weaknesses and an awareness of typical (often implicit) behavioural patterns. A better focus on what is relevant for owner-managers and what is subject to learning and development could improve learning for entrepreneurship in agriculture.

This paper is structured as follows. The next section unfolds the underlying theoretical framework central to this study. This is done by introducing four perspectives on owner-managers' inputs to entrepreneurial endeavours. The discussed literature strands include trait, human capital, competence and organizational learning perspectives on entrepreneurship. Subsequently, the firm performance, or output, side of entrepreneurship is discussed. The theoretical framework is followed by sections in which the applied methods and results are reported. Finally, conclusions and implications for researchers, practitioners and policy makers are suggested.

2. Theoretical framework

2.1. Beyond traits and general human capital

In research on desirable assets of entrepreneurs, a variety of characteristics have been scrutinized. Rooted in theories of personality psychology, essential, stable traits of entrepreneurs have been identified such as high need for achievement and internal locus of control (see Rauch and Frese [15] for an overview and meta-analysis). In the beginning of the 1990s, approaches like these were heavily criticized for suffering from a 'superman' syndrome (no one has the complete package), and influential scholars in the field questioned whether this research tradition would lead to a better understanding of entrepreneurial behaviour [16] given the generic nature of traits. Furthermore, a stable characteristics view could never explain why studies reported significant relationships between participation in entrepreneurship education programmes and entrepreneurial success (based on growth, survival rates and income) [17]. A second stream of research which studies the relation between entrepreneurial inputs and firm success has its origin in management/economic theory. Studies which traditionally focus on the relation between financial success and human resources have their roots in human capital theory [18]. This theory was used to study the effects of employee investments in human capital on earnings and consumption [18]. Later, human capital theory was applied to small firm settings as well, where it has been studied as a characteristic of the entrepreneur in relation to business performance. Human capital in such studies includes a hierarchy of knowledge and skills at a given point in time, which are more or less transferable [19]. A well-established body of literature outlines the positive relationship between all sorts of human capital variables of the entrepreneur and firm performance [20,21]. Such studies human capital share a pragmatic, but simplistic operationalization

of human capital. Typical examples of such operationalizations include years of experience and types of education, which only touch superficially upon the behaviours and activities implemented by entrepreneurs when performing their work [22] and provide little insight into the complex relationships and synergistic effects often observed between human capital and performance [13,23]. The concept of competence can be seen as a third conceptual strand for studying specific entrepreneurial human capital in small firms [24]. Although a focus on competence in relation to performance is not essentially new [25,26], its meaning and use in the scientific literature have changed considerably in a variety of professions during the last decade [27–32]. Unlike previous definitions of competence as a unique de-contextualized construct which could be anything from a trait to specific knowledge, current interpretations of competence represent a comprehensive, context-specific conceptualization of the construct. Competence is here defined as the ability to apply a set of integrated knowledge, skills and attitudes within a specific position and context [33]. *Entrepreneurial* competence can thus be seen as the competence related to the identification and pursuit of opportunities; which is a specific but essential task in small business management that relates to firm innovation, diversification and growth. More specifically, it refers to activities such as identifying customer needs, scanning the environment, formulating strategies, bringing networks together, taking initiative, introducing diversity and collaboration [24,34–38]. This task excludes other important, typically technical or managerial tasks such as managing production processes, supply-chain management, personnel administration, finance and control. Thus, contrary to the trait and general human capital approaches, competence as defined here introduces a more task-specific lens to the study of the enterprising owner-manager in small firms.

2.2. Entrepreneurial competence from a dynamic perspective

In small business and entrepreneurship literature two sets of research questions that address entrepreneurial competence have been studied. One aims at the explorative identification of all sorts of relevant aspects of entrepreneurial competence in a variety of industries including primary production [39,40]. A second, much smaller, strand of research has tried to link self-assessed competencies of owner-managers to venture performance [23,35]. However, both types of studies reveal little about the dynamics involved in the use and development of competence. Furthermore, approaches like these suggest that entrepreneurialism is a purely individualistic practice, and this assumption is not supported by narratives and case studies of professional practice and entrepreneurship which identify social interaction as a major driver for entrepreneurial learning and development [6,41–43]. While there are various models of organizational learning, the so-called four I (4I) model of Crossan and colleagues [44] is particularly applicable for a more dynamic approach to entrepreneurial competence. It is the only (organizational) learning model we know of which has been described in close relation to the process of identification and pursuit of opportunities [5] and which allows for studying individual development without neglecting social mediation. The original Crossan et al. [44] model consists of four processes, which mark different phases associated with the overall, ongoing process of identification and pursuit of opportunities. It begins with *intuiting* (the first I), which is the phase in which the individual (i.e. entrepreneur) begins to develop insight with respect to a possibility or business opportunity. Important aspects of this process are experience, alertness and information-seeking behaviour [44,45]. The second and third processes in the 4I model are *interpreting* and *integrating*. In these two processes there is a move away from the individualistic character of learning. Whereas interpreting

emphasizes the importance of networking (to create a clearer meaning of the idea), integrating stresses the creation of better understanding through dialogue and joint action, such as experimentation [45]. The fourth I, *institutionalizing* emphasizes the organizational level of learning in terms of how the entrepreneur integrates his/her individual learning into structures, systems, procedures and strategies.

Jones and Macpherson [46] add that the 4I model should give more prominent consideration to organizations adjacent to the small firm, since opportunities for new products and services often require involvement of an external partner (e.g. a chain or network partner). Therefore they add a fifth I, *intertwining*, which represents active engagement with other firms, as an important source for introducing new ideas as well as exploiting existing ones [46].

Thus, departing from the individual level of analysis, but acknowledging active social mediation, the development of entrepreneurial competence can be seen as a dynamic process of moving from the construction of an idea to the pursuit of an emerging opportunity through phases of interpretation, integration, institutionalizing and intertwining with key partners and stakeholders.

2.3. Entrepreneurial performance

Studying the relationship between the learning, enterprising individual and firm performance represents several challenges. First of all, before addressing this relationship it is important to realize that the majority of small firms tend to stay at a relatively stable level of operation after the founding phase. This does not necessarily indicate a lack of competence. Although there are only a few specific (longitudinal) studies that address this point, literature suggests that the relationship between competence and performance is influenced by other variables such as goals, self-efficacy, passion and vision of the owner-manager [47]. Studies in agriculture also report the importance of situation-specific motivations of owner-managers in relation to firm performance [48,49]. Furthermore, the notion of firm performance in itself is disputable, since a performance advantage (e.g. size) over other firms is not a measure of entrepreneurial performance per se [3]. Murphy and co-authors [50] provide a systematic overview of performance dimensions and measures used in entrepreneurship literature. By reviewing 71 dimensions that were used to map performance, they concluded that research at that time lacked justification for the selection of certain dimensions and that only in a few cases were more than one or two dimensions used.

When investigating entrepreneurial competence at the individual level, it is important to use comparable performance constructs at the firm level. Davidsson [51] therefore argues that it is key to distinguish between venture performance, i.e. financial performance such as net income, and entrepreneurial performance. What is regarded as entrepreneurial performance at the firm level depends on the definition of entrepreneurship that is used. As stated in the introduction, this article takes a process definition of entrepreneurship. Many authors contend that firm growth is, at least to some extent, an aspect of entrepreneurship [52]. Just as starting a firm is considered to be entrepreneurial, striving for growth is also considered to be more entrepreneurial than remaining stable over time, since growth will increase the firm's complexity over time. Growth is thus more than an increase in sales for a short period; it reflects a longer time period in which aspects such as assets and employees are extended [52]. However, growth can be realized in different ways, not all of which are necessarily entrepreneurial. Referring to the earlier definition which included entrepreneurial opportunities, growth is also associated with newness or innovation. Entrepreneurial opportunities differ from normal possibilities

to optimize the efficiency of existing products in the sense that the former involves new means-ends relationships [3]. The mere obtainment of extra cows on the farm or the acquisition of additional greenhouses which are already up and running are therefore in this study not considered as entrepreneurial growth. Thus, measurements of entrepreneurial performance should preferably include two or three dimensions which relate to growth, but which also incorporate an element of newness or innovation.

To recapitulate, the described extended notions of the enterprising individual (i.e. entrepreneurial competence and its development) are presumed to be related to the outlined conceptions of entrepreneurial performance on the firm level. There is a need to disentangle those relationships more precisely, since studies at present have either paid little attention to task-specificity of entrepreneurial inputs, the dynamics associated with the process of opportunity identification and pursuit or to adequate performance measures that really capture entrepreneurial endeavours on the small firm level. Accordingly, our specific research question was: *How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers develop and use specific entrepreneurial competence?*

3. Research Methods

The current study was situated in a primary production sector well known for its innovative strength: greenhouse horticulture in the Netherlands. It is a major global player that does not receive any significant support from the European Common Agricultural Policy (CAP). An in-depth case study approach was employed in which data sets from various sources were used and method-triangulation was employed [53]. An in-depth case study approach building on different sources of data is preferred since competence and competence development draw heavily on introspection and retrospection, and self-reported data on competence can be influenced by hindsight bias among respondents, social desirability of certain answers and other biases. Concerning entrepreneurial performance, an in-depth approach is also desirable, since growth and innovation indicators are difficult to measure. Data sources included the yearly Innovation Monitor, the Farm Accountancy Data Network and data of personal interviews with the owner-managers themselves. Moreover, a triangulation of methods was used to analyse these data, including an analysis of the cases individually, comparing the cases groupwise and conducting basic quantitative statistical analyses. All used sources and methods are explained below into more detail.

4. Case selection

The cases used in this study were derived from a sample of Dutch greenhouse horticultural firms included in the Farm Accountancy Data Network and Innovation Monitor of the Agricultural Economics Research Institute (LEI) in the Netherlands. Annual data from a panel of greenhouse firms for the period 2004–2007 were used. The original sample consisted of 247 firms. This is a representative sample of the greenhouse horticulture sector in the Netherlands.

To select a purposeful sub-sample for this study, several steps were taken. First of all the different sources of income were considered. In some cases, income generated outside the business was larger than income generated within the (registered) firm itself. The firms for which the ratio of total income generated outside the business divided by the income from the greenhouse firm was larger than .05 were excluded from the sample.

Furthermore, it was assumed that the larger a board of directors is, the more difficult it will be to link performance results to

a particular owner's entrepreneurial competence (development). The cases with more than two owner-managers were therefore also excluded from the sample.

Finally, the averages of two financial performance indicators, namely net profit margin (ratio) and revenue/costs ratio, were calculated for each year for the years 2004 until 2007. Based on these averages, businesses that continuously under- or continuously overperformed compared to the sample mean for the years 2004–2007 were selected. This resulted in a set of 65 firms. From this final sample, 19 owner-managers were willing to participate in the study. The other 46 firms did not participate because they were not interested, had no time, or, in the case of six firms, because they were out of business at the time of the interviews.

4.1. Assessing entrepreneurial competence and its development

The sample of 19 firms contained consistent financial over- and underperformers. All firms were visited and interviewed in the summer of 2008. The interviewer did not know beforehand whether a firm was over- or underperforming. Interviews with the growers were semi-structured and took about 1.5 hours. In the interviews individual entrepreneurial competence as well as perceived competence development first were rated quantitatively by the grower in a questionnaire. Afterwards, the answers the growers gave were discussed with the interviewer in detail. Discussion was needed in order for the growers to put their answers into perspective and to provide more background information if necessary.

The questions about entrepreneurial competence were designed in accordance with the model developed by Lans and colleagues [54]. This model describes three competence domains, which explained almost 40 percent of the variation from a wide variety of entrepreneurial competencies measured among 348 farmers. These three domains were elaborated in the current study based on organizational learning theory and additional research on competence in entrepreneurship.

In line with the presumption that competencies are latent constructs [58], task-related activities may function as a unit-of-analysis for competencies in a questionnaire. Although activities are only possible demonstrations of competence, they present a more fine-grained measure of competence than crude human capital measures or de-contextualized ability scales. Moreover, the advantage of focusing on the actual activities of growers is that they are recognizable for the interviewee and quantifiable. Of course the downside of focusing on activities is that the researcher will tend to only look at overt behaviour and pay less attention to (underlying) cognitive, emotional processes and personal beliefs. To overcome this, thinking activities were also included. See Table 1 for an overview. Since these activities are difficult to 'count', soft quantifiers were used as scales. Twenty-six specific questions were formulated and guided the competence and competence development data collection. The 26 questions described concrete situations, which were associated with the nine discerned activities that demonstrate competence.

Every activity contained two to four distinct situations. The questions consisted of two parts i) how often the growers carry out this activity at present, and ii) the perceived increase/decrease in how often they carry out this activity compared to five years earlier (development). The soft quantifier scales ranged from 1 = never to 5 = always (for the first part of each question) and 1 = significantly less often than five years ago to 5 = significantly more often than five years ago (for the second part of each question). To focus the interviews specifically on the process of opportunity identification and pursuit, all nine activities with their underlying questions were

briefly introduced (i.e. framed) before the grower started answering the questions. As described earlier, the answers the growers gave were discussed after completion of the questionnaire in order to put them into perspective and elaborate on certain (salient) answers. Finally, to position our competence data in the light of the growers' strategies and ambitions over time (2004–2007), two additional variables from the Innovation Monitor were included, namely: the growers' confidence in the future (little... much in the period 2004–2007), and the farmers' innovation goals, which were rated in 2005 based on a selection of common business goals.

4.2. Assessing entrepreneurial performance at the firm level

Four variables that fit our definition of entrepreneurial performance were retrieved from the Farm Accountancy Data Network and the Innovation Monitor for the 2004–2007 period. These variables were:

1. Physical growth of the firm, seen as the expansion of the business in square metres measured as a dichotomous variable (yes/no);
2. Investments in new greenhouses, installations and machinery measured in euros;
3. Modernity of greenhouse, installations and machinery, measured as the book value divided by the replacement value in euros;
4. Introduction of product, process and organizational innovations, measured as a yes/no question including a description of the innovation.

The final grouping of the firms in the sub-sample under the label 'high' or 'low' entrepreneurial performance was based on the aggregation of these four outcome variables. To ensure confidentiality, fictitious names as well as standardized values for the second and third performance variables will be presented in our tables. To correct for sub-sector differences, such as size (e.g. a pot plant greenhouse is usually smaller than a tomato greenhouse), standardized values for each firm were calculated based on the means and standard deviations from the specific sub-sector they belonged to (either flowers or vegetable greenhouses).

5. Results

5.1. Competence, competence development and performance

Table 2 presents the individual level data collected by means of the Innovation Monitor and the competence questionnaire. Almost half of the cases opted for a cost-reduction strategy, and one-third did not have a clear prioritization of the discerned innovation goals. The firms Roma, Orchid, Focoso and Daisy mentioned growth- or innovation-related goals. The scores on the competence questions indicate that none of the owner-managers was always active in all the discerned domains (which would imply a score of 1). Most active were Taiga, Roma, Ferrari and Armada (0.75 or more). The owner-managers who, according to their own assessment, were least active are Warnia and Cytisus (around 0.50). Furthermore, the competence data shows that all but one (Taiga) of the cases reported an increase of entrepreneurial competence.

Only three firms performed consistently high on the aggregate of the four entrepreneurial performance measures (Table 3). The owners of the firms Daisy, Armada and Roma expanded their businesses in the investigated period, invested heavily over these years in their firms (high, positive investment values), had modern firms compared to the sector average (high, positive modernity values) and introduced in this period new processes, products or new ways of organizing. At the other extreme are the firms

Table 1
Overview of the competence domains studied, with the related activities which were measured.

Original domain	Related activities which demonstrate competence	Corresponding author(s)
Analysing	1. Analysis of alternative situations 2. Evaluation of opportunity	[45,46,55,56]
Networking	3. Contact with alternative views 4. Assessing what others find important 5. Integration of others' ideas	[12,46]
Initiating	6. Using inter-organizational relationships 7. Active search 8. Experimentation 9. Implementation	[45,46,56,57]

Table 2
Confidence (2004–2007), innovation goals (2005), education, competence and competence development.

Firm	Confidence	Innovation goals ^a	EDU	EC ^b	ECD ^c
Taiga	Ambivalent	3,4,9,10,11	I _{VET}	0.77	1.00
Roma	Ambivalent	3,6,10	L _{VET}	0.76	1.38
Ferrari	Much	no clear prioritizing	L _{VET}	0.75	1.28
Armada	Much	3	I _{VET}	0.75	1.26
Orchid	Much	3,5	L _{VET} ¹	0.74	1.19
Focoso	Ambivalent	2,7,9,10,11	I _{VET}	0.72	1.18
Consumo	Much	3	I _{VET}	0.72	1.04
Littleton	Much	3,9	I _{VET}	0.71	1.22
Solanum	Ambivalent	no data available	I _{VET}	0.71	1.12
Cherry	Much	no clear prioritizing	I _{VET}	0.69	1.27
Creamist	Much	no clear prioritizing	I _{VET}	0.68	1.15
Fantasy	Ambivalent	no clear prioritizing	L _{VET}	0.68	1.09
Venice	Much	8,11	H _{VET}	0.66	1.14
Daisy	Much	3,6	I _{VET} ¹	0.65	1.18
Fellowship	Little	no clear prioritizing	I _{VET} ¹	0.65	1.03
Grewia	Little	3	L _{VET} ¹	0.63	1.09
Bonaparte	Little	9,10,11	L _{VET}	0.59	1.13
Warmia	Little	1,3	I _{VET}	0.53	1.13
Cytisus	Little	no clear prioritizing	L _{VET} ¹	0.52	1.08

Note. The firms are sorted on the entrepreneurial competence (EC) scores (high-low).

^aThe following goals were discerned: (1) optimizing chains, (2) growth, (3) cost reduction, (4) quality improvement, (5) new products, (6) new markets, (7) access to new knowledge, (8) comply with regulations, (9) environmental strategies, (10) improved labour conditions, (11) product safety. L_{VET} = lower vocational education, I_{VET} = intermediate vocational education, H_{VET} = higher vocational education. ¹ Not sector-specific education. ^b EC = frequency of carrying out activities, displayed as a fraction of the maximum frequency possible (i.e. if all questions would get the maximum score of 5, always). ^c ECD = increase/decrease of carrying out the activities over the last five years. Scores above 1 represent an increase, scores below 1, a decrease.

Table 3
Overview of entrepreneurial outcome variables of the nineteen cases for the period 2004–2007.

Firm	Gr ^a	Innov ^b	Inv ^c	Mod ^d
Daisy	Yes	Yes	2.15	1.62
Armada	Yes	Yes	1.34	0.90
roma	Yes	Yes	0.84	1.18
Solanum	¹	No	0.91	1.81
Ferrari	¹	No	0.53	-0.01
Venice	¹	No	-0.23	0.78
Taiga	No	Yes	0.17	0.84
Creamist	No	Yes	0.08	0.26
Cherry	No	Yes	-0.21	-0.23
Consumo	No	No	0.85	0.33
Littleton	No	No	0.23	-0.19
Bonaparte	No	No	0.09	0.95
Fellowship	No	No	-0.12	-0.26
Orchid	No	No	-0.15	0.52
Grewia	No	No	-0.20	-0.06
Fantasy	No	No	-0.22	0.33
Cytisus	No	No	-0.25	-0.77
Warmia	No	No	-0.27	-0.63
Focoso	No	No	-0.28	0.33
Mean subsector 'flowers'		€ 361,755	0.28	
Mean subsector 'vegetables'		€ 739,808	0.32	

Note. All data were calculated for the period 2004–2007. n.a. = not applicable.

¹These companies expanded their businesses in 2008, which was not within the period covered by the survey. ^a Growth of the firm is the expansion of the business in terms of m². ^b Innovation of the firm refers to the introduction of process, product or organizing innovations. ^c Standardized investment values for the total investment in new buildings, greenhouses and technology (installations and machinery). ^d Standardized modernity value, which is the fixed capital book value/replacement value for new buildings, greenhouses and technology (installations and machinery).

Table 4
Demonstration of entrepreneurial competence for high and low performers.

	D ^a	Activities which demonstrate competence	High performers			Low performers		
			Daisy	Armada	Roma	Warmia	Cytisus	Grewia
1	A	Analysis of alternative situations	n.a.	++	++	+	n.a.	n.a.
2	A	Evaluation of opportunity	+++	+++	+++	+++	++	++
3	N	Contact with alternative views	+	++	+	+	+	++
4	N	Assessing what others find important	++	+	++	++	+++	++
5	N	Integration of others' ideas	++	++	+++	++	+	+++
6	N	Using inter-organizational relationships	+	++	+++	n.a.	n.a.	++
7	P	Active search	+	n.a.	+	n.a.	n.a.	n.a.
8	P	Experimentation	++	++	+++	+	+	+
9	P	Implementation	n.a.	n.a.	n.a.	n.a.	+	n.a.

Note. ^a D = The underlying competence domain (A= analysing, N= networking, P= pursuing).

+ = This activity was carried out frequently in 1(+), 2(++) or 3(+++) situations. N.a. (not applicable)= this activity is never or seldom carried out.

Warmia, Cytisus and Grewia, which did not grow in 2004–2007, invested very little in this period (low, negative investment values), were relatively old firms (low, decreasing modernity values) and did not innovate. The other firms seem to be somewhat in the middle of these extremes. Simple statistical analysis (through combining data from Table 2 with 3) illustrates a positive, significant, correlation between entrepreneurial competence (EC) and standardized investment values (Inv) ($r_s = .45, p < .05$) and between EC and standardized modernity values (Mod) ($r = .46, p < .05$), and between entrepreneurial competence development (ECD) and growth ($r_{pb} = .47, p < .05$). In order to maximize potential differences in competence, competence development and entrepreneurial performance, the three most consistently high-performing (Armada, Daisy and Roma) and low-performing (Warmia, Cytisus and Grewia) firms were investigated in more depth. As an additional source, the qualitative interviews that were held were also taken into account. The results are presented in the following sections.

6. Competence and competence development of high- and low-performing firms

Table 4 displays the six selected owner-managers' current performance of the nine activities as reported at the time of the interviews. One or more plusses per activity means the owner-manager frequently carried out this activity in one or more situations. If an activity was never, or hardly ever, carried out, the cell displays 'not applicable'. Table 5 displays the increase/decrease of entrepreneurial competence, again according to the owner-managers' reporting of the nine discerned activities. One or more plusses in this table refers to an increased frequency of this activity in one or more situations. If an activity was not carried out more frequently than five years earlier, the cell displays 'not applicable'.

Table 5
Development of entrepreneurial competence for high and low performers.

	D ^a	Activities which demonstrate competence	High performers			Low performers		
			Daisy	Armada	Roma	Warmia	Cytisus	Grewia
1	A	Analysis of alternative situations	+++	+++	++	++	+	n.a.
2	A	Evaluation of opportunity	n.a.	++	+++	n.a.	+	++
3	N	Contact with alternative views	++	++	+++	n.a.	n.a.	n.a.
4	N	Assessing what others find important	++	+	+++	++	n.a.	n.a.
5	N	Integration of others' ideas	++	++	+	++	n.a.	++
6	N	Using inter-organizational relationships	+++	+	+++	n.a.	n.a.	+
7	P	Active search	n.a.	+	++	n.a.	n.a.	n.a.
8	P	Experimentation	n.a.	++	++	+	+	+
9	P	Implementation	n.a.	++	++	+	n.a.	n.a.

Note. ^a D = The underlying competence domain (A= analysing, N= networking, P= pursuing).

+ = This activity was carried out more frequently than five years earlier in 1 (+), 2(++) or 3(+++) situations. N.a. (not applicable)= no increase or decrease in frequency of this activity.

From the results presented in Tables 4 and 5 and the interviews, three typical patterns became clear, which are described separately in the following sections. In addition, propositions which relate to the research question are derived from these tables and the performance data presented earlier.

6.1. Similarities and differences

Generic competence research proposes a division between basic, or threshold, competencies and competencies that discern average from high performers [34]. Indeed, the pattern in Table 4 suggests that some competence-related activities are carried out frequently in both high- and low-performing firms. Activities 2–5 and 8 are carried out frequently in all six firms and are also applied in various situations by all the owner-managers. In contrast, activities 1, 6 and 7 are more often and broadly carried out in high-performing firms and hardly acted upon in low-performing firms. This suggests that some activities are 'basic' for running a business in horticulture, and some are more 'distinctive' for high entrepreneurial performance in particular, leading to the first proposition:

P1a The relationship between entrepreneurial competence and entrepreneurial performance is determined by how frequently owner-managers carry out 'distinctive' competence-related activities.

The qualitative interviews provided several important insights into some of the competence-related activities labelled as 'basic'. First, the criteria used by the growers to evaluate a potential business opportunity (activity 2) differ between high and low performers. The owner-manager of Cytisus indicated that he evaluated entrepreneurial opportunities based on whether they would fit into his present strategy (which was to 'wait-and-see'). Similarly, the present strategy of Grewia's owner-manager is to gradually

scale down the business and then sell it. In the high-performing firms, the criteria used to assess entrepreneurial opportunities focus on increasing profitability (Daisy, Armada) and creating added value for the customer (Roma). So, although both groups of owner-managers indicated that they frequently evaluate business opportunities, their evaluative frameworks differ. This suggests a more nuanced picture with respect to the impact of these activities:

P1b The extent to which specific competence-related activities contribute to entrepreneurial performance is influenced by the owner-managers' business goals.

High and low performers also differed with respect to the level of detail in which they were able to explain why they gave a particular answer to a question in the questionnaire. Some elaborated particularly well on the activities that involved social perception and adaptability (activities 4 and 5). For instance, the owner-manager of Roma explained that integrating the ideas of others in your ideas (activity 5) and assessing what others find important (activity 4) are not straightforward processes. This owner-manager tries to find a balance between integrating some ideas and at the same time not being too sensitive about the opinions of others. The owner-managers of Daisy and Armada gave similar explanations as to why they performed these activities more or less frequently, adding that more was not always better. In general, they all described a conscious employment of certain activities which demonstrate competence. This consciousness entailed being aware of specific situations as well as their own role in those settings. This leads to proposition 1c:

P1c The extent to which specific competence-related activities contribute to entrepreneurial performance is influenced by the owner-managers' awareness of the underlying processes (i.e. competence awareness).

6.2. Sustaining an opportunity focus

Successful entrepreneurs continuously link the present to the future [34]. Whether opportunities are considered as objective, waiting to be discovered, or constructed more or less actively by the individual, it is assumed that successful entrepreneurs spend more time thinking about the future and more actively scan the informational environment [19,36]. These notions are reflected in the performance of activities which mark the first steps in identifying opportunities (intuiting and interpreting), namely active search for opportunities (activity 7), analysis of other (non-horticultural) situations (activity 1) and being in contact with those who have alternative views (activity 3). Table 5 shows that the owner-managers of the high-performing firms have become more active in at least two of these three activities, showing the biggest contrast between high- and low-performing firms for activity 3. None of the owner-managers of the low-performing firms mentioned that they had searched more actively in the past five years for new opportunities or increased their contact with people who have alternative views such as chain partners and people outside the sector. The owner-managers of the low-performing firms Cytisus and Warmia reported increased analysis of alternative situations only. However, contrary to the high-performing firms, this increased alertness was limited to situations within their national boundaries. These results thus point to the following propositions:

P2a Entrepreneurial performance is correlated with the development of competence associated with the first phase of the identification and pursuit of an opportunity.

P2b The relationship between entrepreneurial performance and development of competence associated with the first phase of the identification and pursuit of an opportunity can be explained specifically by an increase in contacts with people who have alternative views, and partly by an increase in active search and analysis of specific other situations.

6.3. Developmental relatedness

Tables 4 and 5 demonstrate a relation between present competence and competence development. The Mathew effect, 'those who have more will get more', seems to be applicable here: the high-performing firms scored higher on present activity for all the competencies, and reported a larger increase in activity of all the competencies compared to five years earlier.

P3a. The development of entrepreneurial competence is positively related to entrepreneurial competence, suggesting a self-reinforcing mechanism (horizontal development).

More in detail, when reading Table 5 vertically for every case, it can be seen that the high-performing firms (especially Armada and Roma) invest in the complete range of activities. It appeared in the interviews that the expansion of contacts with new networks (reflected in activities 3 and 6) provided an important medium for generating, as well as implementing, entrepreneurial ideas.

In the low-performing companies this input and output was lacking. The company Grewia illustrates this phenomenon quite well. Although Grewia's owner-manager is very active in terms of networking and interacting with other growers, suppliers, buyers and other chain partners (see Table 4), he explained that the pool of people he visits and who visit his company has not changed in the last five to ten years (see Table 5). He thus has a fairly stable network, which he believes ensures continuity. So, although Grewia's owner-manager is quite active in networking and interacting, high-quality ideas (in terms of newness and innovativeness) are not brought into his network.

Cytisus' owner-manager similarly explained that his network consists mostly of other like-minded growers, preferably from his own region. As he explained, he is rarely in contact with non-growers, such as officials from local governments. This seems to be a deliberate choice, since he is only interested in producing for a very small, specific, regional market. Warmia's owner-manager also reported that he is very passive in expanding his business network to include 'non-growers', since he does not see any added value in doing that. Only the owner-manager of Daisy does not fit this profile completely. In the interview with this grower it appeared that his business grew rapidly and that during the previous five years he was also involved in starting additional activities in the transportation company he founded in the 1990s. This is reflected in the increase of activities 3 and 6 (Table 5). In fact both companies were becoming too large to be managed by a single owner-manager, which forced him to make decisions concerning what activities to spend time on. He chose to 'stay alert' rather than actively search for new opportunities. Thus, when possible, high-performing firms, contrary to low-performing firms, seem to invest in the complete range of activities in which networking seems to play a pivotal role. This leads to the following proposition:

P3b. Carrying out competence-related activities which encompass engagement in new networks enables the development of adjacent competence domains (vertical development).

7. Conclusions and discussion

The relationships between entrepreneurial competence, its development and entrepreneurial performance in small firms represent an area which has fascinated researchers for decades. Recent studies seem to acknowledge the importance of moving towards more sophisticated views on human capital that make it possible to consider the situational, complex and idiosyncratic nature of competence development in small firms [59]. Identifying such linkages is important for agricultural research and practice. Making farmers more entrepreneurial will, according to policy makers and researchers, lead to more effective responses to developments such

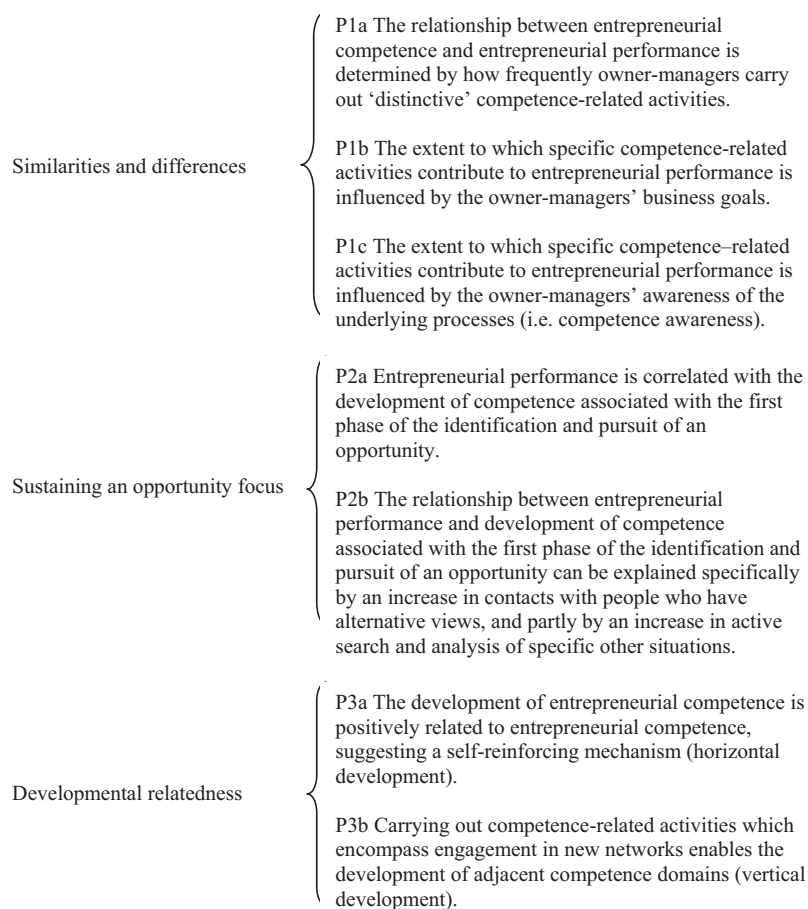


Figure 1. Proposed refinements of the relationships between entrepreneurial performance, entrepreneurial competence and competence development.

as globalization and the reform of the EU’s common agricultural policy.

In answer to our initial research question, How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers develop and use specific entrepreneurial competence?, we can say that considerable differences were found with respect to the use and development of entrepreneurial competence by the growers studied. Experiences in other (unpublished) studies have taught us that these results are not unique to this particular sample. In the agricultural sector as a whole, some farmers/growers seem to be more actively involved in innovation, diversification or growth of their firms than their colleagues. Such activities will help these farmers/growers differentiate their firms from others in the same sector. The cases studied in this research support the conclusion of earlier studies in other sectors [23,35] that entrepreneurial performance at firm level is related to entrepreneurial competence. Furthermore, the cases suggest a correlation between entrepreneurial competence development and growth of the business. However, since the sample is too small for robust statistical analyses, the real added value of this study lies in the further conjectures that the relationships between competence, its development and firm performance are not straightforward, but seem to be influenced by other factors that should be considered.

Based on differences between over- and underperforming firms, seven propositions were derived that further specify the relationship between entrepreneurial performance, competence and competence development in small agricultural firms. The results indicate that the relationship between entrepreneurial

competence and entrepreneurial performance is determined by how frequently owner-managers carry out ‘distinctive’ competence-related activities (Proposition 1a). The extent to which specific competence-related activities contribute to entrepreneurial performance is influenced by the owner-managers’ business goals (Proposition 1b) as well as by the owner-managers’ competence awareness (Proposition 1c). Moreover, there seems to be a relationship between entrepreneurial performance and competence development. It is proposed that entrepreneurial performance is correlated with competence development associated with the first phase of the identification and pursuit of an opportunity (Proposition 2a), which can be explained by an increase in contact with people who have alternative views and partly to an increase in active search and the analysis of specific other situations (Proposition 2b). Furthermore, the results suggest interdependence between competence and competence development (Proposition 3a). Active participation in activities that encompass engagement in new networks enables the development of adjacent competence domains (Proposition 3b). Figure 1 provides an overview of the propositions.

8. Suggestions for further research and limitations

It would be interesting to study the outlined propositions on a longitudinal, more quantitative basis. The initial sample of 247 firms, which was used to come to a more stratified sub-sample, could serve as a starting point for such a study. An interesting venue for additional research is the inclusion of agricultural firms

managed by a team, a phenomenon which most likely will be seen more often in the future due to the steady increase in firm size. Management teams in horticulture typically consist of family members (e.g. brothers, father and sons), which represent special networks with very delicate sets of values, cultures and complexities that come into the workplace.

The study as it has been carried out is not meant to be conclusive. As competence and its development are by definition context dependent, there will be other variables that influence the competence development process. Nevertheless, the findings point towards variables that were also mentioned in research carried out in other sectors. For instance, the mediating effect of business goals and awareness (Proposition 1b/c), the importance of sustaining an opportunity focus (Propositions 2a/b) and the interesting role the networking competence domain seems to have in relation to other competence domains (Proposition 3b). The first point is partly confirmed quantitatively by a study by Baum & Locke [47] who showed that entrepreneurial competence had an indirect effect on venture growth, mediated by goals, self-efficacy and communicated vision. Nevertheless the potential effect of competence awareness for some competence domains is new.

The second point, sustaining an opportunity focus, has also been suggested in recent work of Dyer et al. [36] who compared behavioural patterns of innovative entrepreneurs and executives from a wide range of industries. They concluded that innovative entrepreneurs were more likely to ask questions that challenged the status-quo (rather than optimizing existing processes) and were more active in creating networks of people with diverse ideas and insights. The third point, the networking point, was recently raised by the work of Baron and Tang [60]. In their study on social competence in relation to new venture performance, they conclude that the mechanism behind the positive relationship they found was two-fold. Social competence facilitates the generation of novel ideas as well as access to necessary resources to further exploit an opportunity [60].

Furthermore, the propositions draw attention to an issue which is very difficult to resolve, namely the nature of the causality between business situation, competence and competence development, which was also addressed in the work of Chandler and Jansen [35] and Baum and colleagues [47]. The question remains whether it is the business situation that allows for the expression and development of competencies or it is the set of competencies that together shape the business. For instance firm size, which has not been used explicitly as a discriminating factor. It could be argued that a certain (threshold) size of a firm shifts working processes from their operators from merely efficacy orientated (exploitation) towards more innovative (explorative).

What is challenging in studies like these is the reliance on self-reported data. There was no $t = 0$ measurement of entrepreneurial competence. This problem was addressed in several ways. Since we were interested in 'within-person' growth (related to the business performance of that specific business), it was important that the grower compared their current activities with those of five years earlier. Five years seems to be a reasonable time frame for competence development, as well as a time frame which is still relatively easy to recall and reflect on. To focus, we addressed one aspect of entrepreneurial competence at a time. Moreover, clarifying and elaborating questions were asked if necessary. Finally, we were able to cross-check the answers with longitudinal data from the Innovation Monitor (which contained information about changes in goals and attitudes). Therefore, we were able to draw a quite accurate picture.

Another interesting issue in this type of study is improvability [61]. Research in other settings suggests differences between competence domains [61]. There are some authors who suggest that certain aspects that shape social competence (e.g. the ability

to perceive others accurately, social adaptability) are in fact not so much subject to development, but remain quite stable over time [60]. Research on the development of entrepreneurial expertise explicitly addresses such issues in studies on serial and portfolio entrepreneurs (who start two or more businesses). This approach has gained popularity and has resulted in interesting advancements in particular on entrepreneurial thinking. It could be adopted in agriculture by studying multifunctional agriculture (portfolio entrepreneurship) or internationalization (serial entrepreneurship).

8.1. Implications for agricultural policy and practice

According to many authors current exploration of new pathways to growth, innovation or diversification in the agricultural sector puts a strong emphasis on competence development of farmers and growers [10,62–65]. In this light, the results of this study have interesting implications for agricultural policy makers and practitioners involved in sector development. First of all, this study suggests that investment in entrepreneurial competence in agriculture is a worthwhile journey. Moreover, a good foundation of it helps further improvement, suggesting that initial vocational agricultural education should pay attention to entrepreneurial competence to give future agricultural entrepreneurs a head start.

Nonetheless, initiated competence-related activities were all informal, owner-manager driven, activities not specifically part of or contributed to a network (e.g. study group) or training program. This is not surprising, since it is well documented that small firms participate less often in formal education and training [66,67], particularly if these are small family firms and the individual management development trajectories of owner-managers themselves are at stake [68]. This does not mean that there is no role for public policy to actively support and encourage entrepreneurial competence development in post-initial education. Firstly, the results suggest that entrepreneurial competence development is related to clear, entrepreneurial goals and competence awareness. Both items should be addressed specifically since studies show that much of what has been learned during work is tacit and there is lack of feedback on entrepreneurial accomplishments [6,69]. This could be done through increasing the possibilities for coaching and mentoring of agricultural entrepreneurs. At present such activities are often limited to specific target groups or events (e.g. succession, crisis). Secondly, development of entrepreneurial competence seems to be dependent on the interaction of farmers/growers with a wide diversity of networks. Network formation and the ability to network (e.g. social competence) should be actively supported for instance through specific events and programmes [70,71].

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