

YOUNG ROMANIAN FARMERS' PERCEPTIONS REGARDING SUSTAINABLE AGRICULTURE

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Abstract

Because traditional agricultural practices negatively affect resources, the environment and human health, the need for sustainable agriculture is rapidly emerging. Sustainable agriculture is critical for sustainable development, as agriculture still remains the economic backbone of most countries. This study highlights the perceptions of young Romanian farmers regarding sustainable agriculture. For our research, we used an agribusiness perspective on sustainable development. Results from four focus groups reveal that Romanian farmers do not have a clear understanding of sustainable agriculture. Despite this apparent lack of understanding, young farmers employ sustainable agricultural practices to a certain extent. Most practices related to sustainable agriculture are perceived by young farmers as the “proper” or “traditional way to get things done” in agriculture. From an agribusiness perspective, young farmers are overall more interested in improving profit margins on a short and medium term and are generally reserved towards contributing to environmental conservation due to high perceived costs. Most young farmers also plan the future expansion of their activities, as it is the only survival option in a marketplace where quantity is perceived as more important than quality. However, we identified a group of young farmers who display a proactive attitude towards sustainable development and who are interested in how they can benefit from sustainable agricultural practices in the long term. Finally, the farmers’ degree of environmental concern appears to depend on the agricultural domain of activity, as well as on their individual ability to ensure a secure living standard, potentially from other non-agricultural activities.

Keywords

Sustainable agriculture; young farmers; sustainable development; agribusiness perspective; sustainable practices

JEL Classification

M31, Q01

Introduction

Over the last decades, agricultural practices have been affected by dramatic changes, such as newer technologies, mechanization, specialization, the increasing influence of government policies and the increased use of chemicals or genetically modified organisms. All these changes have led to lower food prices, production maximization, increased profit margins and decreased risks in agribusiness (Hobbs et al., 2007). Despite all their positive effects, modern agricultural practices also generate significant costs. Air, water and soil pollution, soil degradation, new threats to human safety caused by unfamiliar pathogens, economic inequality and a diminished quality of life in rural areas can eventually lead to the disintegration of rural communities and even to the depletion of natural resources.

In the new millennia, scholars have questioned the necessity of all the aforementioned costs and have tried to offer sustainable alternatives for agriculture in rural communities. Sustainable agriculture includes a dynamic set of practices and technologies that minimize damage to the environment, while assuring a sufficient level of income to the farmer over time (Conway & Barbier, 2013). In practice, the farmers and villagers should be the ones who ultimately benefit the most from achieving sustainable agriculture goals. However, studies show that the target audience may not be willing to adopt sustainable agricultural practices that may reduce their income (Tatlidil et al., 2009). Young farmers are exceptionally prone towards developing such attitudes due to intergenerational conflicts and a higher desired standard of living. In reality, such perceptions depend from farmer to farmer based on psychographic factors, such as personality, socioeconomic status and social-cultural characteristics.

In this context, we believe that a better understanding of farmers' perceptions related to sustainable agriculture is essential for promoting the benefits of sustainable agricultural practices towards the target audience. By identifying significant perceptions related to agribusiness and sustainable agriculture, we can provide a better insight needed to support the formulation of policies that promote the adoption of sustainable agricultural practices. The purpose of this study is to explore the perception of young Romanian farmers regarding sustainable agriculture. We first explore the cognitive and conative antecedents of these perceptions and interpret them in comparison with the scholarly framework for sustainable agriculture. Secondly, we analyze young farmers' perceptions from an agribusiness perspective. We conclude with some recommendations to increase the awareness rate of sustainable agriculture practices among young farmers.

Theoretical framework

Significant changes are occurring on farms across Europe. Industrial agricultural systems have been used for years for producing our food. However, from a sustainability perspective, there are several key issues with this industrial farming system. First of all, the industrial consumption of water, topsoil and fossil fuel will deplete these resources at an exponential rate (Conway & Barbier, 2013). Secondly, industrial farming causes environmental degradation, such as pollution or soil depletion, and reduces biodiversity (Pimentel, 1999). Moreover, meat production increases pollution due to a high concentration of animal waste. Animal farming also implies a large energy consumption determined by feeding grain to livestock (Wezel et al., 2014).

At its basis, sustainable agriculture embraces some variants of nonconventional agriculture, such as organic agriculture, green agriculture or alternative agriculture (Hobbs et al., 2007). From an economic point of view, it must be noted that a farm cannot be considered sustainable only because it is organic or alternative. From a business point of view, it also must be noted that the terms „green” and “organic” are most often just simple unsubstantiated marketing claims attached to a product, in the context of an increasing

“greenwashing” effect (Feirnstein, 2013). In reality, for a farm to be sustainable it must produce sufficient amounts of high-quality food, while also being profitable and environmentally safe. Sustainable agriculture aims to produce safe and healthy food, ensure economic viability, improve country life in rural areas and conserve natural resources while delivering services to all ecosystems (Hobbs et al., 2007). Therefore, by making a farm ecologically friendly and more economically diverse, the farm can achieve a greater level of resilience and resource self-reliance.

From a business perspective, sustainable agriculture must provide the ability to continuously and permanently feed an overgrowing population. Although global food security has not been significantly affected by the steady increase in population over the past decades, climate change can significantly impact food security in the future (Hanjra & Qureshi, 2010). The rapidly increasing threat of climate change has determined government officials and key stakeholders to rethink the ways in which agriculture can deliver food and services efficiently and sustainably. Therefore, we believe that is a common moral obligation to pursue the goals of sustainable agriculture in the present in order to provide a better future for all of us. In this context, agribusiness must identify and accept past failures in agricultural practices and agricultural supply chains in order to increase the sustainability of the agricultural system.

It must be noted that sustainable agriculture does not only cover environmental issues, but also biodiversity and economic or social aspects, which are not approached in the traditional view of agriculture. In practice, technology and innovation are key factors of sustainable agriculture (Wezel et al., 2014). From an economic perspective, permaculture, hydroponics, aquaponics and biodynamics are holistic systems which increase both agricultural efficiency and sustainability, by respecting the principle of working „smarter rather than harder”. From a biodiversity perspective, agroforestry, food forests, growth of heirloom and other varieties ensure biodiversity while retaining a high productivity level. From an environmental perspective, natural animal raising, natural pest management, polycultures, crop rotation, mulching, groundcovers and managed grazing ensure incontestable environmental benefits. From a social perspective, local commerce, together with better water and energy management can significantly improve country life in rural areas, while also preserving natural resources.

Despite the various governmental incentives to increase the use of sustainability practices, farmers’ reluctance and resistance to change is significant. As a consequence, even if the efficacy of agriculture systems based on sustainable agriculture models has been proven, the adoption rate of sustainable agriculture practices is quite low (Rodriguez et al., 2009). Previous research has found numerous causes for this phenomenon, but in general sustainable agriculture must be fully compatible with the existing agriculture system in order to overcome farmers’ resistance to change (Drost et al., 1996). The main cause of this phenomenon may be the lack of agronomic knowledge or the lack of understanding of how sustainable agriculture practices can yield positive outputs for farmers (Steinmetz et al., 2016). Some studies also suggest that this high degree of resistance towards change is caused by insufficient knowledge regarding the social processes of specialization and differentiation (Noe & Alroe, 2015; Marsden, 2013). Farmers’ perceptions can’t be changed by better communication methods about desired behaviors, but they can be altered by providing incentives to adopt certain behaviors and practices (Herath & Rao, 2009). Therefore, from an agribusiness standpoint, we advocate for an increased use of practical wisdom and concrete examples in the detriment of scientific language, in order to make information easy to understand and to comply with.

Research methodology

In order to explore the perception of young Romanian farmers regarding sustainable agriculture, we employed four focus groups. As a research method, focus groups offer specific advantages, such as the fact that each participant can reflect on others' viewpoint and thus allows informants to build on the answers of others (Aaker et al., 2016). Narrative content can provide key insights into young farmers' perceptions regarding sustainable agriculture and agribusiness. Therefore, in most cases, it is the most suitable method to study perception formation and its antecedents.

Each focus group consisted of 10 participants from a specific macro region of Romania: Centre - Transylvania, South - Muntenia, South-West - Oltenia, East - Moldova. All participants are active young farmers aged between 19 and 40 years. The male to female ratio across participants is three to one. All participants are active farm managers in small and medium farms, with a ratio of three to one between small and medium farms. Seven participants are beekeepers, nine represent livestock farms, nine manage mixed vegetal/animal farms and fifteen participants are involved in vegetal farms.

Results and discussion

We present our results using a series of illustrative statements about the agribusiness model employed by young farmers that allows us to picture the general context. These statements represent the pattern related to sustainable agriculture emergent from the complete data set. The broader data set offers a good understanding of the issue of sustainable agriculture as perceived by young farmers, while each individual statement provides a more nuanced picture on the issues related to agribusiness practice. We present our findings in Table 1.

An interesting finding of our research is that there are important differences between farmers in terms of their vision of long-term development, in the context of current challenges - environmental, economic or social. The extent to which young farmers embrace the values of sustainable agriculture seems to be significantly influenced by the agricultural branch in which they operate. Thus, beekeepers are strongly interested in preserving the environment and biodiversity and are also concerned with food quality and human health. In opposition, farmers working in the vegetable sector - particularly those who produce greenhouse vegetables - are almost exclusively concerned about their productivity, about obtaining early crops and about short-term profit maximization.

Beekeepers' increased concern about the environment and society could be explained by several factors. Discussions in the focus groups revealed two especially relevant factors. First of all, beekeepers are immediately affected by the changes in the natural environment, such as climate changes, pollution and contamination with pesticides or the use of genetically modified organisms. Also, due to the severe deterioration of the natural environment, beekeeping is endangered in Western Europe (Bouga et al. 2011). These changes frequently lead to bee death or can compromise honey production. Thus, the environmental protection of the bee habitat offers beekeepers direct economic benefits. Secondly, beekeeping is rather a hobby for the vast majority of practitioners (6 out of 7 respondents), unlike for other farmers who consider agriculture "a business that has to provide a decent income".

Another key point of our research was to explore respondents' opinion towards major challenges for agriculture and ask them to propose solutions for the future. The most important challenges, solutions and individual actions can be found in Table 2. Due to obvious differences in perceptions, we held the discussion in subgroups, depending on the sector of activity: plants, beekeeping, animals and mixed.

Table no. 1 Main results from the four focus groups

| Conclusion | Individual Statements | Farmer type |
|--|---|---|
| Most young farmers (>80%) do not know much about sustainable agriculture. | <p>“I don’t know what sustainable agriculture really means”.</p> <p>“I have heard about sustainable agriculture, but I can’t define it or name specific practices”.</p> <p>“It is something related to sustainability, but I do not know how it applies to me”.</p> | <p>SM/M (1,2,3,4); SM/M (1,2,3,4); SM/M (1,2,3,4);</p> |
| Most young farmers apply some sustainability practices without knowing it. | <ul style="list-style-type: none"> - Crop rotation, natural fertilizers, polycultures, heirloom growth, animal welfare, natural grazing; - Natural pest management, permaculture; - Aquaponics, mulching; | <p>SM/M (1,2,3,4); SM(1,2), M(1); M(1), SM(1,3);</p> |
| Young farmers are interested in the advantages that can be brought to them by new technologies rather than by agricultural research. | <p>“Technology can help me increase profits, but I do not see a way research can do that for me”.</p> <p>“Technology can surpass the workforce deficit and increase productivity”.</p> <p>“Technological improvements are better than experimentation for sustainable agriculture”.</p> | <p>SM (1,2,3), M (2,4); SM (3,4), M (1,2,3,4); SM (1,3), M (2,3);</p> |
| Young farmers are interested in protecting the environment to some degree, as long it doesn’t affect their profits. | <p>“I do enough to prevent soil erosion and protect biodiversity, so I don’t see a reason why I should spend more on protecting the environment”.</p> <p>“I am reluctant to spend money for green agriculture without seeing the result first.”</p> <p>“Preserving the environment is important for me because future generations can continue the tradition of farming”.</p> <p>“I already implemented some green practices in my farm. Maybe, with enough financial support, I will try to implement more in the future”.</p> | <p>SM (2,3), M (2,3,4); SM/M (1,2,3,4); SM (1); SM (1);</p> |
| Sustainability problems faced by young farmers | <ul style="list-style-type: none"> - Climatic changes, lack of workforce; - New pests and disease vectors; | <p>SM/M (1,2,3,4); SM (2,3) M (4);</p> |
| Farmers like the concept of sustainability, but they are afraid it doesn’t work. | <p>“I like the concept of sustainability, but does it improve productivity?”</p> <p>“Sustainability sounds good in theory, but things are harder to do and more complicated in practice”.</p> | <p>SM (3,4) , M (1,3,4); SM/M (1,2,3,4);</p> |
| Young farmers rather seek immediate profit. | <p>“I want to substantially increase my profits within the next two years”.</p> <p>“In the next two years, I am concerned only about my profitability and productivity”.</p> <p>“My goals/concerns, regardless of the period are profitability, resilience, sustainability”.</p> | <p>SM (2,3,4), M (3,4); SM (3), M (2,3,4); SM (1), M (1);</p> |

Notes: SM - small farms; M - Medium farms; Regions: 1 – Centre (Transylvania); 2 - South West (Oltenia); 3 - South (Muntenia); 4 - East (Moldova);

Table no. 2 Challenges and future solutions for agriculture

| Sector | Challenge / threat | Solution | Personal action |
|--------|--|---|---|
| Plant | The emergence of new or treatment resistant pests (N=11) | Development of new pesticides (N=11) Creating resistant hybrids (N=6) | No action/ Do not know (N=11) |
| | Lack of labor force (N=11) | Farm process automation (N=8) Import of Asian workers (N=5) | Investing in new technology (N=6) |
| | Climate change (expressed in general terms) (N=4) | Pollution reduction (N=3) Agri-environmental practices (N=1) | No action (N=4) |
| Bees | The widespread use of insecticides (N=7) | Practicing organic farming (N=7) Restricting pesticide use (N=2) | Avoiding tainted crops (N=7) |
| | Environmental degradation caused by climate change and pollution (N=7) | Reduction of pollution and greenhouse gas emissions (N=7) | Militates to reduce pollution (N=4) Volunteering (N=3) |
| | Use of GMOs (N=6) | Prohibition of future use of GMOs | No action (N=6) |
| | Impairment of public health through the poor quality of food obtained in intensive farming / industrial system (N=6) | Supporting organic farming and natural products (N=5) Limiting the consumption of unhealthy products through education (N=4) | Provide quality natural products (N=6) Organic certification (N=3) |
| | Global warming (N=4) | Forest conservation and afforestation (N=4) Reduction of pollution and greenhouse gas emissions (N=4) | Support the education of young people (N=2) Volunteering (N=2) |
| Animal | Lack of labor force (N=5) | Hiring extra-community workers (N=2) | No action (N=5) |
| | Vaccination prohibition and the emergence of zoonoses (N=4) | More permissive European legislation (N=4) Prevention measures (N=1) | Compliance with biosecurity rules (N=4) |
| Mixed | Climate change (expressed in general terms) (N=6) | Pollution reduction (N=5) Adapted animal breeds (N=3) | No action (N=4) Adapting to the new type of climate (N=2) |

Note: N represents the number of respondents who mentioned or agreed on a particular idea

Overall, the main challenges for long-term agriculture are ‘climate change’ (mentioned by 18 respondents) and the ‘lack of labor force’ (16 mentions). After clarifying challenges and solutions, the discussion was finally directed to future trends. The general consensus was that “the agriculture of the future is comprised of large farms that practice intensive, large scale farming, in which product quality is far less important than productivity”.

Conclusions

First of all, most young farmers do not have a clear picture of what sustainable agriculture means. While some focus group participants don’t have any relevant knowledge about this subject, others provided several associations regarding sustainable agriculture, such as “environmental protection”, “preserving resources”, “natural/healthy food” or “using green

energy”. Although they can’t offer a coherent definition of sustainable development, most young farmers apply some sustainability practices without even knowing it.

Secondly, according to the participants, the most important challenges for agriculture are climatic changes, the lack of workforce, new emerging pests and diseases. If the proposed solutions to these challenges are universal and rather vague, in terms of attitude we identified two categories of farmers, approximately equal in weight. The first category includes farmers who are not interested in getting involved or do not know how they could act in a “sustainable way”. The second category is represented by farmers with initiative, willing to contribute to a better future, to implement new technologies, to hire immigrants and to even militate for pollution reduction. The emergence of these two categories of farmers seems to be explained by their activity domain, income levels as well as educational and/or cultural background.

Thus, young farmers in the first category tend to be reluctant about agricultural practices which may reduce their income, although at the same time many of them prefer employing traditional agricultural practices. Focus group participants are generally aware of the problems and long-term threats associated with intensive farming practices, but they are not willing to invest money to mitigate these threats. Moreover, some of them are skeptical about the efficiency of agri-environmental practices. Most respondents from the second category express a certain level of concern about the environment, the health of the end-consumer and the welfare of future generations, as long as it doesn’t greatly affect their profits. These attitudes may be caused by the fact that most respondents are small farmers with relatively low incomes, who prefer to maximize their profit and invest it in expanding the farm. Another explanation might be sociocultural and educational, especially as we observed some differences between farmers coming from different geographic regions and social backgrounds.

A special category of farmers is represented by beekeepers, who are extremely concerned about environmental issues, as well as about product quality. First of all, beekeepers seem to be much more aware and concerned about environmental hazards due to being much more vulnerable in the context of intensive farming, the use of GMOs and climate change. Secondly, profit is less important for beekeepers, as they practice this activity mostly as a hobby and passion. Thus, beekeepers appear to be more caring about people's health, more loving of nature and more passionate about their work.

Theoretical and managerial implications

The differences in perceptions between the two categories of farmers can be theoretically explained through Maslow’s (1987) hierarchy of needs. It is evident that farmers with lower incomes are primarily concerned about ensuring their survival and their basic economic needs. Thus, they are reluctant to focus on environmental protection. However, farmers who practice beekeeping mostly as a hobby have their financial needs better fulfilled from other sources. Thus, they are much more open to focus on higher-order values, such as sustainability and community well-being. Potentially, they are also more open to learning about sustainable practices, instead of narrowly focusing on raising profits and productivity.

The results of the focus groups offer support for several managerial implications. It is obvious that most participants have a very vague knowledge regarding sustainable agriculture and thus detain a potentially distorted image of the real benefits and disadvantages of sustainable agriculture. In this context, it is essential to address farmers’ perceived risks of employing sustainable agricultural practices, such as reduced productivity and financial costs. Therefore, funding should be directed towards mitigating these risks and costs, by providing financial compensations for farmers who employ such sustainable agricultural practices. Moreover, it is essential to raise awareness regarding the personal

benefits of sustainable agricultural practices, such as the farmers' ability to practice premium prices for organic agricultural products and to ensure a healthier living environment for their own families. Finally, Romanian farmers appear willing to learn about and implement sustainable practices which do not encumber financial costs. Therefore, they could be successfully enrolled in informational programs which present practical ways of implementing sustainable and economically viable agricultural practices.

Finally, we identified differences in the environmental awareness and concern of Romanian farmers, differences which may be triggered by their distinct sociocultural and educational backgrounds. As we do not have enough information to support this hypothesis, we propose investigating the role of different geographic regions in determining sociocultural and educational particularities which affect the farmers' level of environmental concern.

References

- Aaker, D.A., Kumar, V. and Day, G.S., 2016. *Marketing research*. 12th ed. John Wiley & Sons.
- Bouga, M., Alaux, C., Bienkowska, M., Büchler, R., Carreck, N. L., Cauia, E. and Gregorc, A., 2011. A review of methods for discrimination of honey bee populations as applied to European beekeeping. *Journal of apicultural research*, 50(1), pp.51-84.
- Conway, G.R. and Barbier, E.B., 2013. *After the green revolution: sustainable agriculture for development*. London: Routledge.
- Drost, D., Long, G., Wilson, D., Miller, B. and Campbell, W., 1996. Barriers to adopting sustainable agricultural practices. *Journal of Extension*, 34(6), pp.1-6.
- Feinstein, N., 2013. Learning from past mistakes: future regulation to prevent greenwashing. *Boston College Environmental Affairs Law Review*, 40, pp.229-257.
- Hanjra, M.A. and Qureshi, M.E., 2010. Global water crisis and future food security in an era of climate change. *Food Policy*, 35(5), pp.365-377.
- Hobbs, P.R., Sayre, K. and Gupta, R., 2007. The role of conservation agriculture in sustainable agriculture. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 363(1491), pp.543-555.
- Marsden, T., 2013. From post-productionism to reflexive governance: Contested transitions in securing more sustainable food futures. *Journal of Rural Studies*, 29, pp.123-134.
- Maslow, A.H., 1987. *Motivation and personality*. In: R. Frager, J. Fadiman, C. McReynolds și R. Cox, eds. New York: Harper & Row.
- Noe, E. and Alrøe, H.F., 2015. Sustainable agriculture issues explained by differentiation and structural coupling using social systems analysis. *Agronomy for Sustainable Development*, 35(1), pp.133-144.
- Pimentel, D., 1999. Environmental and economic benefits of sustainable agriculture. In: J. Köhn, J.M. Gowdy, F. Hinterberger and J. van der Straaten, J. (eds.), 1999. *Sustainability in question: the search for a conceptual framework*. Cheltenham: Edward Elgar Publishing. pp.153-170.
- Rodriguez, J.M., Molnar, J.J., Fazio, R.A., Sydnor, E. and Lowe, M.J., 2009. Barriers to adoption of sustainable agriculture practices: Change agent perspectives. *Renewable Agriculture and Food Systems*, 24(1), pp. 60-71.
- Steinmetz, Z., Wollmann, C., Schaefer, M. and Schaumann, G.E., 2016. Plastic mulching in agriculture. Trading short-term agronomic benefits for long-term soil degradation? *Science of the Total Environment*, 550, pp.690-705.
- Tatlidil, F.F., Boz, İ. and Tatlidil, H., 2009. Farmers' perception of sustainable agriculture and its determinants: a case study in Kahramanmaraş province of Turkey. *Environment, Development and Sustainability*, 11(6), pp.1091-1106.

Wezel, A., Casagrande, M., Celette, F., Vian, J.F., Ferrer, A. and Peigné, J., 2014. Agroecological practices for sustainable agriculture. A review. *Agronomy for sustainable development*, 34(1), pp.1-20.