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The society and the journal: Making interdisciplinarity a special issue in the life sciences

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ABSTRACT

The Royal Netherlands Society for Agricultural Sciences (*Koninklijke Landbouwkundige Vereniging*, KLV, founded in 1886) took the initiative to publish the Netherlands Journal of Agricultural Science (NJAS) in 1953. In 2002, NJAS broadened its scope and was titled: NJAS–Wageningen Journal of Life Sciences. After 134 years, the general assembly of members decided to dissolve the Society in 2020. The end of the Society will not be the end of its journal. This paper presents a brief history of the Society and the journal, which exposes how the Society's journal, originally strongly anchored in the plant sciences and agronomic research in the Netherlands, evolved towards an international journal with an increasingly strong interdisciplinary scope. The brief history signifies the crucial role of special issues as a collaborative endeavour and learning environment for making interdisciplinary approaches work.

1. Introduction

In the year 2020, a pandemic has shown how the biological world interferes with the social and political life of the world population and with the world economy. Likewise, the importance of connecting the natural sciences and the social sciences both for understanding the impact of COVID-19 and finding possible ways to manage or cope with a pandemic spreading globally has become evident. Unravelling the connected and interdependent natural and social realms has been one of the corner stones of NJAS – Wageningen Journal of Life Sciences. With the dissolution of the Royal Netherlands Society for Agricultural Sciences (*Koninklijke Landbouwkundige Vereniging*, KLV) in 2020, we, as current and former editors-in-chief of NJAS – Wageningen Journal of Life Sciences, look back at the spirit of interdisciplinary approaches and integrative research central to the Society's journal. The brief historical description of the Society, founded 134 years ago in 1886, and of the journal, established in 1953, suggests that the need for an interdisciplinary journal will sustain.

2. The Society (KLV) and the journal (NJAS)

This year is an important moment for the Society KLV (Wageningen

Alumni Network, formerly known as the Royal Netherlands Society for Agricultural Sciences) and its journal (NJAS–Wageningen Journal of Life Sciences). In 2020, the general assembly of KLV decided to dissolve the Society. The Society was founded in 1886 as the association for alumni of the *Rijkslandbouwschool* (National Agricultural College established in 1876), later the *Hoogere Land- en Boschbouwschool* (Agricultural and Forestry College, 1896) and turned in 1904 into *Rijks Hoogere Land-, Tuin- en Boschbouwschool* (National Agricultural, Horticultural and Forestry College, 1904) (Groot and Kasteren, 2012). After 134 years, both membership of the Society and the interest in its services and platforms declined. The Society's roles in relation to the university's alumni and making the connection between professional fields and research have been taken over by Wageningen University itself, the foundation University Fund Wageningen (UFW) and by several independent Study Circles and Networks in the Netherlands and globally.

NJAS–Wageningen Journal of Life Sciences is an important element of the heritage of the Society that will most likely sustain. Nonetheless, the dissolution of the Society has implications for its journal. The collaboration with Elsevier as its publishing house was an important step for NJAS in 2009. It reinforced its position as a journal with international authors, including a growing number of PhD candidates from all over the world, an international readership and an international scope in

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the domain of multidisciplinary agricultural sciences (Struik and Wienk, 2009). Elsevier has been publishing a significant number of journals in collaboration with or on behalf of scientific or professional societies such as KLV. In 2020, Elsevier decided that it would not take over ownership of the journal from the Society. As owner of the journal, the Society, together with the editors, the editorial board and its publishing house, Elsevier, explored how to continue and the search is almost coming to an end. The search confirmed that there is a demand for a platform for interdisciplinary research in the life sciences.

This sustained interest in an integrative lens for understanding complex and persistent problems in agricultural production, food and nutrition security and natural resource management reflects how the journal evolved. The Netherlands Journal of Agricultural Science, NJAS, the quarterly journal of the Royal Netherlands Society for Agricultural Sciences (*Koninklijke Landbouwkundige Vereniging*, KLV), started in 1953 as the international counterpart of a journal in Dutch, the *Landbouwkundig Tijdschrift*. The Society established the journal to create an international platform for professional knowledge and research in the Netherlands. It aimed to share knowledge and findings based on research in the Netherlands or through the involvement of Dutch researchers in tropical agriculture, which closely resembled the orientation of its Dutch equivalent (Groot and Kasteren, 2012). In the 1980s, the journal published synopses or listed available reports with specialised information and insights originating in the Dutch knowledge infrastructure linking research institutes and the predecessors of Wageningen University. Synoptic publishing, complementary to regular papers, did not become successful and ended in 1990. From then onwards, the journal has become a leading platform for publishing peer reviewed papers in the domain of multidisciplinary agricultural sciences.

3. The nature of an interdisciplinary journal

Taking an interdisciplinary perspective on the life sciences has widened the scope of the journal, which started with a strong anchoring in the plant sciences and primary production, and now has also become a platform for researchers from the animal, food, environmental and social sciences with an interest in crossing disciplinary boundaries and making novel connections between concepts, methodologies and methods. In the 1990s, the journal widened its scope and became a platform for peer reviewed papers in the broad domain of the agricultural sciences (Groot and Kasteren, 2012; Struik et al., 2002). In 2002, the editors expanded the domain of NJAS and announced the change of the name of the journal: from the Netherlands Journal of Agricultural Sciences to NJAS–Wageningen Journal of Life Sciences (Jongen et al., 2002). This name change reflected the need to broaden the scope and recognise the multiplicity of disciplines and schools of sciences (Struik et al., 2002), which also resonated with the strategic orientation of Wageningen University (Groot and Kasteren, 2012). NJAS–Wageningen Journal of Life Sciences aspired to become the main platform for science that is multidisciplinary in its approach, interdisciplinary in its methodology (including interactions between natural and social sciences, the so-called beta-gamma interactions) and quantitative (based on systems analysis and modelling) in its analysis. Editorial policy in 2009 confirmed the multidisciplinary orientation of NJAS, covering the fields of plant, animal, food, environmental and social sciences. The most recent scope of NJAS–Wageningen Journal of Life Sciences consistently endorsed the focus on interdisciplinary and transdisciplinary research on complex and persistent problems in agricultural production, food and nutrition security and natural resource management.

In the period 2002–2008, the journal generated a rich set of special issues developing the interdisciplinary approach and demonstrating the merit of integrative research. Interdisciplinary research approaches were also related to the ambition to achieve more impact in research for development. Wageningen University launched the Interdisciplinary Research and Education Fund (INREF) programme in 2000, which

aimed to contribute to the development of innovative and interdisciplinary research approaches. NJAS has served as a journal to publish and disseminate the results of these approaches. In 2004, the special issue resulting from the Convergence of Sciences (CoS) programme presented diagnostic studies on the conditions for linking science and farmers' innovative capacities and for grounding agricultural research in the needs of resource-poor farmers (Nederlof et al., 2004; Röling et al., 2004). A special issue in 2006 used the experiences from six interdisciplinary research programmes funded by INREF to reflect on the assumption that system and interdisciplinary approaches make development-oriented research potentially more impactful (Bouma et al., 2006). Central to the special issue was a critical reflection on the strengths and weaknesses of collaborative research between the natural and technical sciences (the beta sciences) and the social (gamma) sciences (Koning and Bouma, 2006), which translated into the call in the journal's aims and scope to focus not only on lower levels of aggregation, such as primary production, but also to use interdisciplinary research to unravel linkages between scales or to analyse dynamics at higher levels of aggregation.

The collaboration with Elsevier (2009–2020) reinforced the centrality of special issues as a way to enhance interdisciplinarity. In 2009, this started with the special issue on the diverse field crop simulation and model-based decision support systems (Weiss et al., 2009). In 2012, the Convergence of Sciences – Strengthening Innovation Systems (CoS-SIS) continued the interest in diagnostic research in support of innovation and the resulting special issue responded to the call for connecting the farmer nexus with higher level institutional conditions (Jiggins, 2012; Röling et al., 2012). The interest in beta-gamma diagnostics was taken up by another INREF programme, which unravelled the linkages between increasingly available information and communication technologies and the role of citizen science in the collective management of crops, water resources, livestock, wildlife and (human, animal and plant) diseases in rural areas of several countries of Africa (Cieslik et al., 2018; Leeuwis et al., 2018; Struik et al., 2018). Taking an integrative, gamma-gamma approach within the social sciences motivated a special issue on localized ex-ante institutional diagnostics (Rodrik, 2010), which investigated approaches and methods, anchored in different institutionalisms, unpacking how institutions influence food security levels in diverse African contexts (Schouten et al., 2018). Apparently, proper diagnostics requires interdisciplinarity.

In addition to this programmatic interest in diagnostics, researchers from the social sciences used NJAS–Wageningen Journal of Life Sciences as a platform to assemble a variety of scholars to explore emerging topical terrains, such as digitalisation (Klerkx et al., 2019) or the bio-economy (Dries et al., 2016), and to elaborate novel methodological and conceptual perspectives underlying an integrative perspective on the study of performance in social-technical agricultural and scientific practices (Almekinders et al., 2011; Jansen and Vellema, 2011). This complements the focus on beta-gamma interactions with approaches integrating multiple perspectives in the social sciences.

Other special issues focused on sustainability related concepts:

- 'low-input farming systems', aiming at making agriculture less dependent on chemical inputs and responding to consumers asking for food produced in an environmentally friendly way (Lammerts van Bueren et al., 2011; Leifert et al., 2011);
- 'livestock farming with care', connecting debates on impacts of intensive farming on animal welfare, the environment and landscape (Kropff, 2013; Scholten et al., 2013);
- 'social learning', depicting sustainability as a continuous learning path towards transformation (Wals and Rodela, 2014).

Core message in these sustainability oriented special issues is that interdisciplinary approaches are needed for analysing and addressing the complex and persistent problems in agricultural production, food and nutrition security and natural resource management. Similar

arguments are put forward in the rich collection of individual papers published in NJAS–Wageningen Journal of Life Sciences.

4. Epilogue

The brief history of the scientific and professional Society KLV and its journal NJAS shows how interdisciplinary approaches in the life sciences are strongly rooted in scientific practices at Wageningen University & Research. Published by the Society itself from 1953 to 2008, and from 2009 to 2020 by Elsevier, the journal -NJAS- represents a history of how research approaches in the agricultural and life sciences evolved, eventually leading to a strong interdisciplinary and emergently trans-disciplinary orientation. In 2020, the Society for Wageningen alumni ceases to exist, but it has laid the foundation for a vibrant future perspective for an international journal, with strong links to Wageningen, serving the diverse and global community of creative researchers and out-of-the-box thinkers in the domains of agriculture, food and environment. The brief history of the Society and the journal demonstrates the importance of special issues in encouraging young scholars to examine the value of crossing disciplinary boundaries and linking scientific inquiry to groups in the wider society.

References

- Almekinders, C.J.M., Jansen, K., Struik, P.C., Wienk, J.F., 2011. Preface. *NJAS - Wageningen J. Life Sci.* 57 (3), 167. <https://doi.org/10.1016/j.njas.2010.12.001>.
- Bouma, J., Koning, N.B.J., Struik, P.C., Wienk, J.F., 2006. Preface. *NJAS - Wageningen J. Life Sci.* 53 (3), 247–252. [https://doi.org/10.1016/S1573-5214\(06\)80008-4](https://doi.org/10.1016/S1573-5214(06)80008-4).
- Cieslik, K.J., Leeuwis, C., Dewulf, A.R.P.J., Lie, R., Werners, S.E., van Wessel, M., et al., 2018. Addressing socio-ecological development challenges in the digital age: exploring the potential of Environmental Virtual Observatories for Connective Action (EVOCA). *NJAS - Wageningen J. Life Sci.* 86–87, 2–11. <https://doi.org/10.1016/j.njas.2018.07.006>.
- Dries, L., Klomp, J., van Ophem, J., Zhu, X., 2016. Social science perspectives on the bio-economy. *NJAS - Wageningen J. Life Sci.* 77, 1–4. <https://doi.org/10.1016/j.njas.2016.04.001>.
- Groot, Md., Kasteren, Jv., 2012. *Wageningers: De betekenis van 134 jaar Koninklijke Landbouwkundige Vereniging*. Van Gorcum, Assen.
- Jansen, K., Vellema, S., 2011. What is technography? *NJAS - Wageningen J. Life Sci.* 57 (3), 169–177. <https://doi.org/10.1016/j.njas.2010.11.003>.
- Jiggins, J., 2012. Diagnostic research in support of innovation. *NJAS - Wageningen J. Life Sci.* 60–63, 115–121. <https://doi.org/10.1016/j.njas.2012.06.008>.
- Jongen, W., Struik, P., Wienk, J., 2002. A new scope for the Netherlands journal of agricultural science. *NJAS - Wageningen J. Life Sci.* 50 (2), 261–265.
- Klerkx, L., Jakku, E., Labarthe, P., 2019. A review of social science on digital agriculture, smart farming and agriculture 4.0: new contributions and a future research agenda. *NJAS - Wageningen J. Life Sci.* 90–91, 100315. <https://doi.org/10.1016/j.njas.2019.100315>.
- Koning, N.B.J., Bouma, J., 2006. Epilogue. *NJAS - Wageningen J. Life Sci.* 53 (3), 387–394. [https://doi.org/10.1016/S1573-5214\(06\)80015-1](https://doi.org/10.1016/S1573-5214(06)80015-1).
- Kropff, M.J., 2013. The discussion on livestock farming asks for a broad perspective. *NJAS - Wageningen J. Life Sci.* 66, 1. <https://doi.org/10.1016/j.njas.2013.05.007>.
- Lammerts van Bueren, E.T., Jones, S.S., Tamm, L., Murphy, K.M., Myers, J.R., Leifert, C., Messmer, M.M., 2011. The need to breed crop varieties suitable for organic farming, using wheat, tomato and broccoli as examples: a review. *NJAS - Wageningen J. Life Sci.* 58 (3), 193–205. <https://doi.org/10.1016/j.njas.2010.04.001>.
- Leeuwis, C., Cieslik, K.J., Aarts, M.N.C., Dewulf, A.R.P.J., Ludwig, F., Werners, S.E., Struik, P.C., 2018. Reflections on the potential of virtual citizen science platforms to address collective action challenges: lessons and implications for future research. *NJAS - Wageningen J. Life Sci.* 86–87, 146–157. <https://doi.org/10.1016/j.njas.2018.07.008>.
- Leifert, C., Tamm, L., Lammerts van Bueren, E.T., Struik, P.C., Wienk, J.F., 2011. Preface. *NJAS - Wageningen J. Life Sci.* 58 (3), 65–66. <https://doi.org/10.1016/j.njas.2011.09.007>.
- Nederlof, E.S., Tossou, R., Sakyi-Dawson, O., Kossou, D.K., 2004. Grounding agricultural research in resource-poor farmers' needs: a comparative analysis of diagnostic studies in Ghana and Benin. *NJAS - Wageningen J. Life Sci.* 52 (3), 421–442. [https://doi.org/10.1016/S1573-5214\(04\)80024-1](https://doi.org/10.1016/S1573-5214(04)80024-1).
- Rodrik, D., 2010. Diagnostics before prescription. *J. Econ. Perspect.* 24 (3), 33–44.
- Röling, N.G., Hounkonnou, D., Offei, S.K., Tossou, R., Van Huis, A., 2004. Linking science and farmers' innovative capacity: diagnostic studies from Ghana and Benin. *NJAS - Wageningen J. Life Sci.* 52 (3), 211–235. [https://doi.org/10.1016/S1573-5214\(04\)80015-0](https://doi.org/10.1016/S1573-5214(04)80015-0).
- Röling, N., G, Hounkonnou, D., Kossou, D., Kuyper, T., W, Nederlof, S., Sakyi-Dawson, O., et al., 2012. Diagnosing the scope for innovation: linking smallholder practices and institutional context: introduction to the special issue. *NJAS - Wageningen J. Life Sci.* 60–63, 1–6. <https://doi.org/10.1016/j.njas.2012.06.004>.
- Scholten, M.C.T., de Boer, I.J.M., Gremmen, B., Lokhorst, C., 2013. Livestock Farming with Care: towards sustainable production of animal-source food. *NJAS - Wageningen J. Life Sci.* 66, 3–5. <https://doi.org/10.1016/j.njas.2013.05.009>.
- Schouten, G., Vink, M., Vellema, S., 2018. Institutional diagnostics for African food security: approaches, methods and implications. *NJAS - Wageningen J. Life Sci.* 84, 1–5. <https://doi.org/10.1016/j.njas.2017.11.002>.
- Struik, P.C., Wienk, J.F., 2009. Letter from the editors. *NJAS - Wageningen J. Life Sci.* 57 (1), 1. <https://doi.org/10.1016/j.njas.2009.12.002>.
- Struik, P.C., Wienk, J.F., Gerritsma, W., 2002. An overview of 49 volumes of the Netherlands journal of agricultural science. *NJAS - Wageningen J. Life Sci.* 50 (2), 119–131.
- Struik, P.C., Cieslik, K.J., Leeuwis, C., Dewulf, A.R.P.J., 2018. Preface. *NJAS - Wageningen J. Life Sci.* 86–87, 1. <https://doi.org/10.1016/j.njas.2018.07.003>.
- Wals, A.E.J., Rodela, R., 2014. Social learning towards sustainability: problematic, perspectives and promise. *NJAS - Wageningen J. Life Sci.* 69, 1–3. <https://doi.org/10.1016/j.njas.2014.04.001>.
- Weiss, A., Flerchinger, G., N, McMaster, G., S, Wang, E., White, J.W., Yin, X., et al., 2009. Recent advances in crop growth modelling. *NJAS - Wageningen J. Life Sci.* 57 (1), 3. <https://doi.org/10.1016/j.njas.2009.12.001>.