

Scotland's Rural College

Two hundred volumes of Agricultural Systems

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Editorial

Two hundred volumes of *Agricultural Systems*: Common themes and trends

ARTICLE INFO

Editor: Val Snow

ABSTRACT

This editorial observes 200 volumes of *Agricultural Systems*. Volume 1, dated January 1976, began with an article by the inaugural editor, C.R.W. Spedding (1976), that laid the foundations for this journal. We echo that first editorial with this contribution to begin Volume 201 and review some aspects of the history of the journal. To celebrate those 200 volumes, we have prepared a Collection of the highly-cited papers published over the last 46 years in those volumes. Here we present brief summary information about the journal, compare themes common to the opening editorial and the highly-cited papers, and conclude with an intent to review the aims and scope of the journal over the next year or so.

1. Editors and publication trends

Agricultural Systems published 22 papers in the first four-issue volume in 1976 (Fig. 1). Publication numbers were reasonably steady from the mid 1980's to mid-2000's averaging about 70 per year before beginning to climb to a peak of 243 in 2021. Of course, many more manuscripts were submitted than papers published. Full data on an annual basis is available only from 2017 when 912 manuscripts were submitted. Submissions rose to an average of 1225 per year in 2018 and 2019 and then increased further to an average of 1580 per year in 2020 and 2021. Assessed on an annual basis (i.e., manuscripts submitted in a calendar year against papers published in the same year, so ignoring lags between submission and final decision), annual acceptance rates have varied between 12 and 18%.

The inaugural editor (Table 1) guided the journal for its first 12 years. With the increase in the number of papers published, the size of the editorial team has also increased (Fig. 1). From 1988 to 2002, there were two editors, Barry Dent, Jim Jones. As submissions grew from 2002 to about 2018, there were usually, with some transitional overlaps, four editors at any one time. The current team numbers eight.

Geographic and gender balance in the editorial team has been historically poor (Table 1). Most of the past editors had their home bases in Europe, UK, USA, or Australia. More recently editors from, or working in, South America and New Zealand have been appointed. We acknowledge the poor geographic spread in the team and that there is work to be done to improve this imbalance in the future. Contrasting this, gender balance within the editorial team has substantially improved. Until late 2017 (when Emma Stephens and Val Snow were appointed), all editors in the prior 40 years of *Agricultural Systems* had been male. Today, of the team of eight, half are female. While we can be proud of the gains made in the gender balance within the editorial team, we still have work to improve geographic diversity and also improve aspects of geographic and gender diversity in the editorial advisory

board, reviewers and authors.

2. A virtual special issue of highly-cited publications

As the 201st volume approached, we decided to highlight highly-cited publications in the preceding 200 volumes in the form of the Special Issue “Celebrating Two-Hundred Volumes of *Agricultural Systems*”. Citation practices have evolved over the years, the number of papers published per year has increased over time, and citation rates vary with time elapsed since publication. Given these factors, selections were made within slices of time as indicated in Table 2 with the five highest-cited papers in each date range selected. These papers have been added to the special issue as listed in Table 3.

3. Common themes across 200 volumes

It is interesting to compare these highly-cited papers spanning the first two hundred volumes against some of the opening remarks in Spedding (1976). Much of the opening editorial outlined the need and role of models in aiding systems understanding in its various forms. Many of the papers that we highlight in the special issue lie within this theme. These include: Sanders and Cartwright (1979a), Morley et al. (1978), Baldwin et al. (1977), Whittemore (1983), de Wit et al. (1988), McCown et al. (1996), Probert et al. (1998), Freer et al. (1997), Tedeschi (2006), van Ittersum et al. (2008), and Jones et al. (2017) or about half of the featured publications – and of course many of the publications include modelling within their methods. Aspects of systems understanding outlined in the scope-setting editorial is reflected in the publications of Fernandes and Nair (1986), Thornton et al. (2009), Rigby and Cáceres (2001), De Ponti et al. (2012), and Giller et al. (2011).

Spedding (1976) also highlighted the need for understanding the effects and impacts of agricultural inputs and the weather/climate drivers and diseases (and here we include pests and weeds) on system

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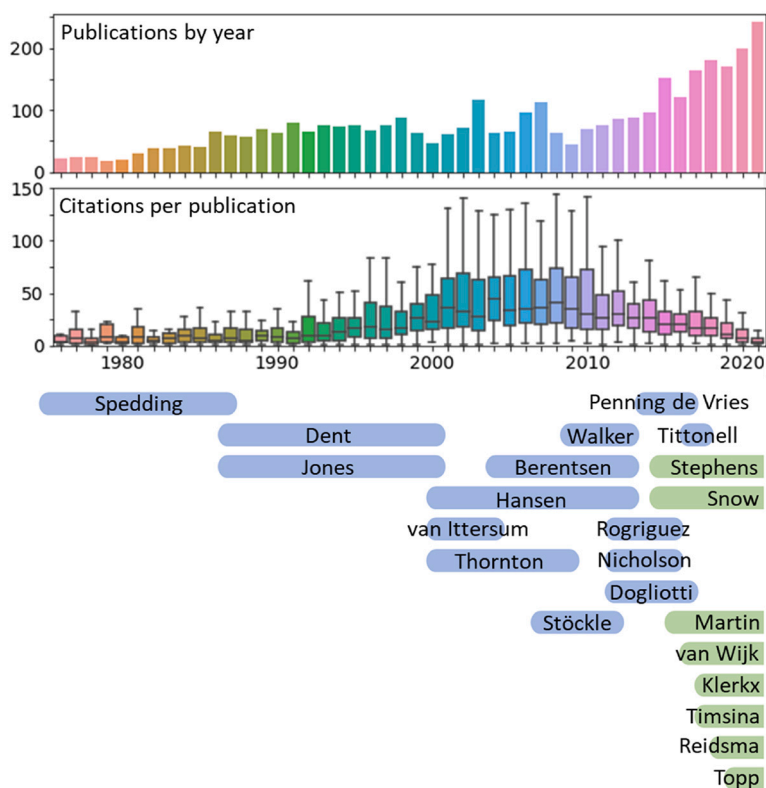


Fig. 1. Trends, to the end of 2021, in the number of published papers (upper panel), Scopus citation rates per published paper (as of 17 May 2022; middle panel), and the editorial team with past (blue) and current (green) editors of *Agricultural Systems*. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

Table 1
Editors, their country, and the approximate years they served as editors of *Agricultural Systems*.

Editor	Country	Years
Colin Spedding	UK	1976–1988
Barry Dent	UK	1988–2002
Jim Jones	USA	1988–2002
James Hansen	USA	2002–2015
Martin van Ittersum	The Netherlands	2002–2006
Philip Thornton	Kenya	2002–2011
Paul Berentsen	The Netherlands	2006–2015
Claudio Stöckle	USA	2009–2014
Daniel Walker	Australia	2011–2015
Daniel Rodriguez	Australia	2014–2018
Charles Nicholson	USA	2014–2018
Santiago Dogliotti	Uruguay	2014–2019
Frits Penning de Vries	The Netherlands	2015–2019
Pablo Tittonell	Argentina	2019–2020
Emma Stephens	Canada	2017 – present
Val Snow	New Zealand	2017 – present
Guillaume Martin	France	2018 – present
Mark van Wijk	Ecuador	2019 – present
Laurens Klerkx	The Netherlands	2020 – present
Jagadish Timsina	Australia	2020 – present
Pytrik Reidsma	The Netherlands	2021 – present
Kairsty Topp	UK	2022 – present

choices and functioning. Papers aligning against this theme include van Heemst (1985), Conway (1987), Pretty et al. (2000), Schipanski et al. (2014), Wolfert et al. (2017), Graamans et al. (2018) and Fritz et al. (2019). Another theme in the opening editorial was the need for multiple methodologies. While typology, participatory and stakeholder methods were not specifically mentioned they are within Spedding's theme of understanding the influence of the socio-economics context on agricultural systems and here we include the papers by Kostrowicki

Table 2
Date ranges, total number of papers published, and the Scopus citation count (as of 17 May 2022) of the 5th highest-cited paper originally published within the date range (Cite-5).

Date range	Number published	Cite-5
1976 to 1980	106	54
1981 to 1990	505	81
1991 to 2000	708	308
2001 to 2010	761	386
2011 to 2017	782	250
2018 to 2022 (Vol. 200)	879	101

(1977) and Grimble and Wellard (1997) in this category. Expressed as reliability, the resilience focus of Meuwissen et al. (2019) also aligns within the ambit of the initial editorial. Spedding (1976) did not specifically mention innovation systems which are the focus of Klerkx et al. (2010) and Pigford et al. (2018) but it could be argued that they would fit within the theme of multi-level regional and wider systems. Interestingly, the collection of highly-cited papers cover all levels as suggested by Spedding (1976), from crop and cattle production to the global level.

With the above analysis it might seem, that despite the passing of 200 volumes and 46 years, not much has changed in the world that this journal reflects. Yet the applications of the work published has evolved. There is a greater emphasis on externalities, understanding synergies and trade-offs, sustainable development, alternative farming systems and 'big data', throughout many of the later publications. The resilience of farming and agricultural systems is probably featuring in a wider context than initially envisaged.

Interestingly, in 1976, Spedding floated that there might be a need for mechanisms for lodging data and exchanging models and in this respect seems to have anticipated current trends for data journals.

Table 3

Publications included in the *Two-Hundred Volumes of Agricultural Systems* Collection and the Scopus citations (as of 17 May 2022).

Publication	Cites
<i>1976 to 1980</i>	
Sanders and Cartwright (1979a) A general cattle production systems model. I: Structure of the model	77
Morley et al. (1978) Predicting ovulation rate from liveweight in ewes	59
Sanders and Cartwright (1979b) A general cattle production systems model. Part 2-Procedures ...	58
Baldwin et al. (1977) A dynamic model of ruminant digestion for evaluation of factors ...	56
Kostrowicki (1977) Agricultural typology concept and method	54
<i>1981 to 1990</i>	
Conway (1987) The properties of agroecosystems	289
Fernandes and Nair (1986) An evaluation of the structure and function of tropical home gardens	201
Whittemore (1983) Development of recommended energy and protein allowances for growing pigs	106
de Wit et al. (1988) Application of interactive multiple goal programming techniques for analysis ...	83
van Heemst (1985) The influence of weed competition on crop yield	81
<i>1991 to 2000</i>	
McCown et al. (1996) APSIM: a novel software system for model development, model testing...	594
Grimble and Wellard (1997) Stakeholder methodologies in natural resource management: review...	470
Probert et al. (1998) APSIM's water and nitrogen modules and simulation of the dynamics ...	399
Pretty et al. (2000) An assessment of the total external costs of UK agriculture	383
Freer et al. (1997) GRAZPLAN: Decision support systems for Australian grazing enterprises ...	308
<i>2001 to 2010</i>	
Thornton et al. (2009) The impacts of climate change on livestock and livestock systems ...	504
Tedeschi (2006) Assessment of the adequacy of mathematical models	421
Klerkx et al. (2010) Adaptive management in agricultural innovation systems...	409
van Ittersum et al. (2008) Integrated assessment of agricultural systems...	393
Rigby and Cáceres (2001) Organic farming and the sustainability of agricultural systems	386
<i>2011 to 2017</i>	
Wolfert et al. (2017) Big Data in Smart Farming – A review	916
De Ponti et al. (2012) The crop yield gap between organic and conventional agriculture	542
Schipanski et al. (2014) A framework for evaluating ecosystem services provided by cover crops...	292
Giller et al. (2011) Communicating complexity: Integrated assessment of trade-offs ...	287
Jones et al. (2017) Brief history of agricultural systems modelling	250
<i>2018 to Volume 200 in 2022</i>	
Meuwissen et al. (2019) A framework to assess the resilience of farming systems	136
Pigford et al. (2018) Beyond agricultural innovation systems? Exploring an agricultural ...	132
Graamans et al. (2018) Plant factories versus greenhouses: Comparison of resource use efficiency	119
Fritz et al. (2019) A comparison of global agricultural monitoring systems and current gaps	103
Kanter et al. (2018) Evaluating agricultural trade-offs in the age of sustainable development	101
<i>For transparency, any publications authored by current editors while they were acting as editors were excluded from the above analysis</i>	

One thing that has not changed is that this journal is a comfortable 'home' for research that does not necessarily fit well into the tight disciplinary norms found in some other journals that do not embrace multi-, inter-, and trans-disciplinarity.

4. Looking forward with *Agricultural Systems*

Many of the topics discussed by Spedding (1976) remain relevant for the journal to this day but some have drifted out of scope or have been deemphasised. That 1976 editorial discussed the systems nature of agriculture that this journal pursues today – indeed the title could easily be “*Systems: Agriculture*” or similar as the present title suggests, to some readers a rather more generic subject area than intended. Over the next year or so, we will review the subject areas within the scope of this journal and consider if adjustments to the Aims and scope are needed.

Acknowledgements

This journal could not possibly have persisted, and been the success that it is, without the sustained efforts of past editors, authors, and reviewers. Also critical to success are the publishers and journal managers that have served the journal over the years. We thank all those individuals for building the journal and ‘handing it over’ to us in such a great state. We hope that we do justice to the prior efforts.

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