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Editorial: Impact beyond data

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Editorial

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I experimented with typing this article in '*Impact*' font. It turned out to be almost illegible: impact of a sort, but not a good outcome for me and meaningless to the reader, since the typesetter will choose the font that you actually see. There is a simple message: impact is not an easy concept. Journal Impact Factor (IF) is a case in point. Our Impact Factor has increased in each of the last two years and we expect it to do so again this year. That is good news for the Journal and good news for authors, although please remember that the link between IF and scientific quality is tenuous at a Journal level (I have previously mentioned in these pages that the index was originally intended as nothing more than a tool for librarians apportioning limited subscription funding) and even more so at an article level. Nevertheless, it is gratifying to see our published work being cited at an increasing rate and, given the long-term nature of much of dairy research, within a relatively short time frame (five articles from our August 2020 Special Issue are already cited, for example). Over the last five years our global JDR Community has grown to now number almost 4000, and there has been an upsurge in submissions from countries where scientific research has historically had only a local audience or none at all. In terms of dissemination to a global scientific audience, we are surely having impact. As a submitting author you are asked to briefly describe how your research '*advances relevant knowledge or understanding*' and '*benefits animal or human society*'. In other words, we are seeking two forms of impact: academic and societal. By publishing novel data we contribute to academic impact, although it should be remembered that data, in itself, has limited or no value without concomitant interpretation and subsequent exploitation. It is perhaps not surprising that the three most cited articles from 2020 were all reviews, but looking back over the last three years the picture is quite different; ten out of the twelve most cited articles were research papers reporting original data. I consider this to be an important and healthy observation, but it is not without complications. Since the window for generating IF is two years, were we to focus more on reviews our IF would increase more rapidly, but less data would be published and so one could argue that our true academic impact would suffer in the longer term. Our contribution to societal development is harder to quantify. Had it been possible during 2020 to show that a novel bioactive casein fragment protected against SARS-CoV-2 infection the impact would have been monumental, but to my knowledge there has been no such observation (please prove me wrong if you can!) With the possible exception of HIV, this is the first time in a lifetime that the developed world has faced a major disease pandemic and the impact on lives and livelihoods has been enormous, although some context is needed. Globally, Covid-19 was associated with around 2.2 M deaths in the year to January 2021, with updated data being reported on every major news outlet on a daily basis. In the same period of time, around 9 M people around the world would have died from hunger or diseases associated with hunger, around one-third of these being children with their whole life ahead of them. The world was largely unaware. From an academic point of view, all of the Covid-19 data collected in an attempt to prevent transmission of the virus will probably prove to have much less real impact than the applied research of those academics who set about developing vaccines, and it is to be hoped that, firstly, SARS-CoV-2 will fairly soon become another manageable affliction in the same genre as polio, smallpox or influenza and, secondly, that we shall be better prepared, as a society, when coronavirus version 3 arrives. One thing is quite certain, and to illustrate it I go back in time thirty-five years to this quote: '*Throughout history and prehistory, the human race has had a major struggle to procure a safe and nutritionally adequate supply of food which is stable over time. There have been successes and failures in this struggle, and it continues, for the number of people in the world goes on growing while the land resource is fixed in amount*'. This is taken from the first chapter of '*From Dearth to Plenty*' (Blaxter and Robertson, 1995), which tells the story of the agricultural revolution occurring in developed countries in the fifty years from 1936 to 1986. As the title implies, food shortages became almost unheard of for those living in the developed world. However, our global population continues to expand and so, at a global level, hunger and starvation will be with us for far longer than the pandemic. Furthermore, the situation will get significantly worse as a direct consequence of the pandemic (shorter term) allied with a decreasing land resource consequential on climatic change (longer term). For some, the '*Plenty*' described by Kenneth Blaxter still exists and is, of course, a problem in its own right: obesity is a major contributor to the 11 M annual deaths reportedly associated with poor quality diet (this is quite separate from the hunger previously mentioned), one aspect

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of which is '*diet low in milk*' (GBD 2017 Diet Collaborators, 2019). Another aspect of data impact is revealed by this paper, which attracted considerable debate for the veracity of its data. This is in part due to the extremely complex socioeconomics of the diet:health interface; some would still take the opposite view and see excessive consumption of dairy products as more of a problem than defecit (I believe they are wrong, but that is another story!) For another example of this complexity, and returning to Covid-19 for a moment, an analysis of dietary changes made as a consequence of lockdown revealed both increased and decreased obesity. In short, the fat got fatter and the fit got fitter (Sidor and Rzymski, 2020). What should be clear from all of this is the continuing need for research addressed to '*procure a safe and nutritionally adequate supply of food which is stable over time*'. The impact of such research will never be easy to assess, and may not get the recognition that it deserves: an online search for '*most impactful research of twentieth century*' only came marginally close to anyone concerned with food-related research when it included (in seventh place) Ivan Pavlov, of Pavlov's dogs (conditioned reflex) fame. Well, they were being fed! I cannot say why food research should be undervalued by society, but it would appear to be the case (despite being published by a highly reputable source, the Blaxter reference is not listed by PubMed, for instance). Do we as a Journal contribute to food-security impact? In the current issue we feature a Research Reflection that addresses the topic of greenhouse gas emissions specifically in developing countries (Munidasa *et al*., 2021) as well as an original research article focused on similar issues in the European small dairy ruminant sector (del Prado *et al*., 2021), and at the other end of the dairy foods chain our Research Review is concerned with the milk fat globule membrane and improved infant formulae (da Silva *et al*., 2021). In between are papers focused on animal health, on animal behaviour and on product quality so yes, we can have impact that '*benefits animal or human society*', and we can do so across a spectrum. Please, take likely impact into account when you plan your research and again when you submit it to the Journal. In return, we shall endeavour to have a positive impact on your careers and research opportunities, examples of this being our recent innovations in introducing Foreign Language Abstracts and PhD Thesis Abstracts to the Community website and our increased focus on topic-oriented Research Clusters: watch out for non-bovine dairy ruminants and progressive dairying for developing countries.

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