

Knowledge politics in development-oriented agronomy¹

-- DRAFT --

Jens Andersson² and James Sumberg³
November 2015

Introduction	1
Development-oriented agronomy	2
The contested agronomy argument.....	3
Knowledge politics in development-oriented agronomy.....	4
References	5

Introduction

Over the last two decades there has been renewed concern about food security and the state of the global food system. Concerns about population growth, climate change, food price spikes, food safety scares and food-related disease have brought debates about food production and consumption back into the public arena (Ingram et al. 2010; HLPE 2011; UK Foresight 2011), after a long period in which agricultural research and development issues were largely neglected by the international community (Adenle et al. 2013).⁴ With this has come a rekindled appreciation of the agricultural sciences, which are understood to have a major role to play in addressing these challenges. Bringing together the biological and human factors in agricultural production, agronomy is at the very centre of efforts to sustainably enhance agricultural productivity and address food security challenges. Yet we suggest that the discipline of agronomy is also in a state of transition, and at the heart of this transition are questions such as “*What agronomy?*”, “*Whose agronomy?*” and “*Whose agronomy counts?*”.

While such questions are being asked about agronomy in general, our focus is specifically on agronomy as a component of rural development in the South. We call this ‘*development-oriented agronomy*’, which is itself a broad church. It includes a myriad of sub-specialties relating to crop and pasture production, including but not limited to crop and soil management, crop improvement, irrigation, crop-livestock integration, farm and farming systems analysis. It is undertaken in and funded by a range of public and private sector organisations, in the south and in the north. A defining characteristic of development-oriented agronomy is that it is motivated first and foremost by a desire to contribute to one or more key development challenges, like food and nutrition security, welfare and well-being, and environmental sustainability.

Despite these common underpinnings, development-oriented agronomy is no stranger to debate and contestation. For example, there has been a protracted debate about the role agronomic technology and management practices in the Green Revolution in Asia, and its poverty, labour and equity effects – although not much of this debate has appeared in

¹ Introductory paper prepared for the conference **Contested Agronomy 2016**, 23-25 February 2016, Institute of Development Studies (IDS), Brighton

² CIMMYT: j.andersson@cgiar.org

³ IDS: j.sumberg@ids.ac.uk

⁴ For example, the World Bank had largely ignored the central role of agriculture in rural development throughout much of the late 1980s and 1990s. Its *World Development Report 2008: Agriculture for Development* was the first time the Bank’s flagship publication was devoted to the topic in 25 years.

mainstream agronomy journals (Griffin 1974; Conway 1999; Evenson and Gollin 2003; Orr 2012; Patel 2013). Recent years have seen claims and counter claims, evidence and counter evidence, as well as contradictory conclusions, endorsements and recommendations about, for example, the performance and potential value of genetically modified (GM) crops, the System of Rice Intensification (SRI), Conservation Agriculture (CA), organic farming's ability to feed the world, the Savory holistic grazing method, New Rice for Africa (NERICA), Climate Smart Agriculture, Sustainable Intensification and so on. Such contestations cannot be dismissed as either aberrations or as a failure of the discipline. On the contrary, they appear to be an increasingly common feature of agronomy as a scientific discipline. As argued and exemplified in *Contested Agronomy: Agricultural research in a changing world* (Sumberg and Thompson 2012), they are worthy of serious analysis for what they can tell us about the politics and power relations that underpin and orient the production and promotion of development-oriented agronomic knowledge.

In the next section of this introductory paper we explore the notion of development-oriented agronomy. We then briefly summarise the original contested agronomy argument. Following this, the paper focuses on the notion of knowledge politics, which sits at the core of contested agronomy.

Development-oriented agronomy

Development-oriented agronomy as we know it today has its roots firmly in the European colonial era (Ross 2014). The ecosystems, crops, soils and farming practices that colonial officers encountered in Africa, Asia and Latin America – and the drive to use or to modify these to fuel European economic expansion – framed the development of the new sub-speciality of “tropical agronomy”. But aside from a focus on tropical areas and the close association with the authority of the colonial project, as a field of knowledge creation, there was little inherent coherence to tropical agronomy.

The shift from tropical agronomy to development-oriented agronomy took place over a number of years and reflected the change from colonial to independent administrations; the development of national agricultural research organisations and capabilities; a greater emphasis on food crops and rural poverty alleviation; and more generally, the emergence of the ‘developmental state’ (Leftwich 1995). In parallel, as colonial configurations transitioned to the new institutions and international relations of foreign aid, technical and development assistance, development-oriented agronomy took on a strong international dimension with, for example, the establishment of the UN Food and Agriculture Organisation (FAO), the Consultative Group for International Agricultural Research (CGIAR) and other regional research organisations, and a network of students, relations and partnerships linking agricultural universities and institutions in the south and the north.

If tropical agronomy lacked coherence as field of knowledge creation, a similar charge can also be levelled at development-oriented agronomy. A variety of understandings of and approaches to development-oriented agronomy are evident, as exemplified by different definitions and research traditions. For example, the Oxford English Dictionary (2012) defines agronomy as “the practice or (now chiefly) the science of crop production and soil management”, while the American Society of Agronomy’s *Agronomy Journal* states that it publishes:

“articles relating [...] soil-plant relationships; crop science; soil science; biometry; crop, soil, pasture, and range management; crop, forage, and pasture production and utilization; turfgrass; agroclimatology; agronomic modeling; statistics; production agriculture; and computer software”.⁵

⁵ <https://dl.sciencesocieties.org/publications/aj/about>

Here agronomy is framed as an essentially technical science that has little overt concern with the social, economic or political relations within which agriculture and agronomic research are undertaken. A somewhat broader perspective is apparent in the definition of *agronomie* given in *Larousse agricole*:

*“Ensemble des sciences nécessaires à la compréhension de l'agriculture et des techniques utiles à sa pratique. Au sens strict, l'agronomie est l'étude scientifique des relations entre les plantes cultivées, le milieu (sol, climat) et les techniques agricoles. Dans un sens plus large, elle comprend aussi l'ensemble des sciences et des techniques relatives à l'élevage, à la sylviculture, au génie rural. Enfin, l'économie, la sociologie, la comptabilité et la gestion de l'exploitation agricole sont aujourd'hui considérées comme des sciences nécessaires à la compréhension des techniques”*⁶ (Larousse agricole, Édition 2002).

One could conclude from this that the Francophone tradition of agronomy and agronomic training is inherently more holistic, situated and systems-oriented. However, it would probably be a mistake to draw too sharp a distinction between Anglophone and Francophone traditions in development-oriented agronomy. For instance, both traditions made important contributions to the farming systems research movement of the 1980s and 1990s (Collinson 2000; Fresco 1984), which can be seen as one attempt to broaden and situate development-oriented agronomy (although at least on the Anglophone side, largely led by economists). Similarly, the push to both broaden and situate agronomy can also be discerned in today's sustainable agriculture and agroecology movements (Wezel et al. 2009), and in the interest within the CGIAR and elsewhere in so-called “agricultural research for development” (AR4D) (Virchow and von Braun 2001; von Kaufmann 2007; cf. Coe et al. 2014).

The contested agronomy argument

As set out by Sumberg et al. (Sumberg et al. 2012b, 2012c) the contested agronomy argument has four main elements:

1. Over the last four decades the context within which development-oriented agronomy takes place has been transformed fundamentally, with the most important changes being the rise of (a) the neoliberal project; (b) the environmental agenda; and (c) the participation agenda.
2. As a result, the long-standing unity of purpose between the state, on the one hand, and the agronomic research establishment, on the other, was undermined. Agronomy ceased to be the handmaiden of the state, with important implications for how development-oriented agronomy is conceived, funded, managed, implemented, evaluated and portrayed.
3. With less unity of purpose, and in the more crowded, competitive, short-term and impact-oriented funding context, agronomy has become an altogether more contested and contentious space: the politics around agronomic knowledge is now less controlled and much more public.

⁶ [[All the sciences necessary to the understanding of agriculture and the techniques to practice it. Strictly speaking, agronomy is the scientific study of the relationships between cultivated plants, the environment (soil, climate) and agricultural techniques. In a much broader sense, it also includes all sciences and technologies related to livestock (breeding), forestry and rural engineering. Finally, economics, sociology, accounting and management of the farm are nowadays also considered necessary for understanding technology.]]

4. This new knowledge politics around development-oriented agronomy is having important impacts on the discipline itself, and on its ability address the challenge of sustainably enhancing agricultural productivity.

The environmental and participation agendas certainly helped to restructure the language and re-orient the gaze of development-oriented agronomy. For example, today when words like “agriculture”, “farming systems” and “intensification” appear without being preceded by “sustainable”, it is as if a sacred rule or norm is being publically and dangerously flouted. Also, the propositions that farmers are knowledgeable, that agronomic research should be client- or demand-driven, and that potential users of technology have a role to play in technology development, are now commonly accepted amongst agronomists. While the extent to which the environmental and participation agenda have really changed the priorities, methods or outputs of development-oriented agronomy is still a matter of debate, there can be little doubt that new spaces have been opened up for the public contestation of agronomy’s goals, priorities, methods, results and recommendations.

At the same time, the effects of the neoliberal project on development-oriented agronomy have been very real. The goal of shrinking the state and strengthening accountability led to the embedding of New Public Management (NPM) principles in government and public institutions (Dunleavy and Hood 1994; Manning 2001). These principles include performance auditing and measurement, privatisation, competition, strategic planning and management and public-private partnership (Gruening 2001). For agricultural research this has meant a fundamental change in the basis on which research programmes are conceived, funds allocated and investments evaluated.

The influence of NPM can be seen in the emphasis that funders of agricultural research now put on establishing results frameworks, elaborating targets, identifying quick wins, meeting delivery schedules, theorising impact pathways, and demonstrating “value for money” and ultimately impact. The CGIAR’s *Strategy and Results Framework 2016-2025*⁷ with its vision, mission, three strategic goals or system-level outcomes (SLOs), ten Intermediate Development Outcomes (IDOs) and 32 sub-IDOs is a case in point, but it is certainly not unique. Sumberg et al. (2012c) suggested that these measures would likely favour downstream over upstream and short-term over long-term research, which would be at odds with the rhetorical focus on sustainability. In this context, the need to demonstrate “impact at scale” creates strong incentives for individuals and organisations at all levels – from field-based research agronomists to bi- and multi-lateral research funders – to establish and defend their particular contributions. It is ironic that in the era of evidence-based policy and “rigorous” impact evaluation, the “success story” has become a format of choice in the struggle to convince funders, politicians and the public of the benefits of development-oriented agricultural research (e.g. Wiggins 2009; Spielman and Pandya-Lorch 2009; cf. Sumberg et al. 2012a).

It is in this context that a focus on the knowledge politics within development-oriented agronomy becomes particularly important.

Knowledge politics in development-oriented agronomy

The idea that knowledge and evidence are steeped in power and politics is now widely accepted. Robert Chambers’ simple question “*Whose knowledge?*” (Chambers 1983) reminds us of the existence of different knowledges, and the inherent limitations of thinking in terms a single objective truth or reality. The political angle comes into play in the ways that

⁷<https://library.cgiar.org/bitstream/handle/10947/3746/CGIAR%20Strategy%20and%20Results%20Framework%202016%E2%80%932025%20-%20Final%20Consultation.pdf?sequence=1>

individuals and groups selectively generate and/or use knowledge to establish, maintain or enhance their vested interests or ideologies. The common presumption in much of the literature on knowledge politics is that powerful actors are better placed to do this successfully than other actors.

Contested Agronomy: Agricultural research in a changing world, primarily sought to draw attention to the rise of a more explicit knowledge politics within and around the field of agronomy. It sought to open up the analysis of agronomic knowledge production, appropriation and application in terms of different interests, networks, epistemic communities and asymmetric power relations (e.g. Andersson and Giller 2012; Brooks and Johnson-Beebout 2012). In so doing it brought to the fore the role of the agronomist, but perhaps more importantly, the role of agronomic research institutes, as political actors. Focusing on specific contestations and alliances among agronomic scientists, and between agronomists, policy makers, practitioners and other development actors, provides a logical entry-point for analysis of the politics of development-oriented agronomic research. This focus highlights important questions such as: “Who are the powerful actors?”, “What are their vested interests?” and “How is knowledge created and mobilised within epistemic communities to construct and promote particular framings and narratives in support of these interests?”

If taken seriously, a knowledge politics perspective means that agronomy can no longer be regarded as the preserve of a particular category of scientists focusing on, for example, soil management and crop production. After all, the politics of agronomic knowledge supports and reflects the interests of a much wider set of actors, from national and international public-sector research organisations to multinational agri-food corporations, food sovereignty campaigners, farmers and consumers. The analysis of knowledge politics should help explain why particular agricultural technologies or development pathways are favoured over others (e.g. Vanloquerin and Baret 2009), with, in some cases, very real implications for peoples’ food security and well-being, resource use and conservation. In this sense, putting a spotlight on the politics of development-oriented agronomy can contribute to the opening up and enrichment of debate and deliberation about the future of farming, rural economies, food and the environment (Thompson and Sumberg 2012). Unfortunately, what the spotlight reveals is not always pretty, nor does it necessarily lead to simple recommendations for action or immediate impact.

Finally, *Contested Agronomy* traced the origins of contestations in agronomy through a focus on knowledge politics, and we hope that the papers and discussion at the February 2016 conference will significantly deepen and broaden this analysis. While the emphasis to date has not been on either how to do “better” agronomy or how to do agronomy better, we suggest that important implications for the doing of agronomy arise from a recognition of and engagement with knowledge politics.

References

- Adenle, A. A., Morris, E. J., & Parayil, G. (2013). Status of development, regulation and adoption of GM agriculture in Africa: Views and positions of stakeholder groups. *Food Policy*, 43, 159-166, doi:10.1016/j.foodpol.2013.09.006.
- Andersson, J. A., & Giller, K. E. (2012). On heretics and God's blanket salesmen: contested claims for Conservation Agriculture and the politics of its promotion in African smallholder farming. In J. Sumberg, & J. Thompson (Eds.), *Contested Agronomy: Agricultural Research in a Changing World*. London: Routledge.
- Brooks, S., & Johnson-Beebout, S. (2012). Contestation as continuity? Biofortification research and the CGIAR. In J. Sumberg, & J. Thompson (Eds.), *Contested Agronomy: Agricultural Research in a Changing World*. London: Routledge.
- Chambers, R. (1983). *Rural Development: Putting the Last First*. London: Longman.

- Coe, R., Sinclair, F., & Barrios, E. (2014). Scaling up agroforestry requires research 'in' rather than 'for' development. *Current Opinion in Environmental Sustainability*, 6(73-77).
- Collinson, M. P. (Ed.). (2000). *A History of Farming Systems Research*. Wallingford: CABI.
- Conway, G. (1999). *Doubly Green Revolution: Food for All in the Twenty First Century*. Ithaca, NY: Cornell University Press.
- Dunleavy, P., & Hood, C. (1994). From old Public Administration to New Public Management. [Article]. *Public Money & Management*, 14(3), 9-16.
- Evenson, R. E., & Gollin, D. (2003). Assessing the impact of the Green Revolution, 1960 to 2000. *Science*, 300, 758-762.
- Fresco, L. O. (1984). *Comparing Anglophone and Francophone Approaches to Farming Systems Research and Extension*. Gainesville: Farming Systems Support Project, International Programs, Institute of Food and Agricultural Sciences, University of Florida.
- Griffin, K. (1974). *The Political Economy of Agrarian Change: An Essay on the Green Revolution*. Cambridge, MA: Harvard University Press.
- Gruening, G. (2001). Origin and theoretical basis of new public management. *International Public Management Journal*, 4(1), 1-25.
- HLPE (2011). *Price Volatility and Food Security Report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Rome: UN Food and Agriculture Organization.
- Ingram, J., Ericksen, P., & Liverman, D. (Eds.). (2010). *Food Security and Global Environmental Change*. London: Earthscan.
- Leftwich, A. (1995). Bringing politics back in: Towards a model of the developmental state. *The Journal of Development Studies*, 31(3), 400-427, doi:10.1080/00220389508422370.
- Manning, N. (2001). The Legacy of the New Public Management in Developing Countries. *International Review of Administrative Sciences*, 67(2), 297-312, doi:10.1177/0020852301672009.
- Orr, A. (2012). Why were so many social scientists wrong about the Green Revolution? Learning from Bangladesh. *Journal of Development Studies*, 48(11), 1565-1586.
- Oxford English Dictionary (2012). "agronomy, n.": Oxford University Press.
- Patel, R. (2013). The Long Green Revolution. *Journal of Peasant Studies*, 40(1), 1-63.
- Ross, C. (2014). The plantation paradigm: colonial agronomy, African farmers, and the global cocoa boom, 1870s–1940s. *Journal of Global History*, 9(1), 49-71.
- Spielman, D. J., & Pandya-Lorch, R. (Eds.). (2009). *Millions Fed: Proven Successes in Agricultural Development*. Washington, DC: IFPRI.
- Sumberg, J., Irving, R., Adams, E., & Thompson, J. (2012a). Success making and success stories: agronomic research in the spotlight. In J. Sumberg, & J. Thompson (Eds.), *Contested Agronomy: Agricultural Research in a Changing World*. London: Routledge.
- Sumberg, J., & Thompson, J. (Eds.). (2012). *Contested Agronomy: Agricultural Research in a Changing World*. London: Routledge.
- Sumberg, J., Thompson, J., & Woodhouse, P. (2012b). Contested agronomy: agricultural research in a changing world. In J. Sumberg, & J. Thompson (Eds.), *Contested Agronomy: Agricultural Research in a Changing World*. London: Routledge.
- Sumberg, J., Thompson, J., & Woodhouse, P. (2012c). Why agronomy in the developing world has become contentious. *Agriculture and Human Values*, 1-13, doi:10.1007/s10460-012-9376-8.
- Thompson, J., & Sumberg, J. (2012). Nullius in verba: contestation, pathways and political agronomy. In J. Sumberg, & J. Thompson (Eds.), *Contested Agronomy: Agricultural Research in a Changing World*. London: Routledge.
- UK Foresight (2011). *The Future of Food and Farming: Challenges and Choices for Global Sustainability, Final Project Report*. London: Government Office for Science.

- Vanloquerin, G., & Baret, P. V. (2009). How Agricultural Research Systems Shape a Technological Regime that Develops Genetic Engineering but Locks out Agroecological Innovations *Research Policy*, 38(6), 971-983.
- Virchow, D., & von Braun, J. (2001). Dresden Declaration: Towards a Global System for Agricultural Research for Development. In D. Virchow, & J. von Braun (Eds.), *Villages in the Future* (pp. 321-322, Global Dialogue EXPO 2000): Springer Berlin Heidelberg.
- von Kaufmann, R. (2007). *Integrated Agricultural Research for Development: contributing to the Comprehensive Africa Agricultural Development Programme (IAR4D in CAADP)* (Advances in Integrated Soil Fertility Management in Sub-Saharan Africa: Challenges and Opportunities).
- Wezel, A., Bellon, S., Dore, T., Francis, C., Vallod, D., & David, C. (2009). Agroecology as a science, a movement and a practice. A review. [Review]. *Agronomy for Sustainable Development*, 29(4), 503-515, doi:10.1051/agro/2009004.
- Wiggins, S. (2009). *Can the smallholder model deliver poverty reduction and food security for a rapidly growing population in Africa?* Paper presented at the Expert Meeting in How to Feed the World in 2050, Rome, 12-13 October, 2009