

BOOK REVIEW

## Marci R. Baranski, *The Globalization of Wheat*

**Pittsburgh: University of Pittsburgh Press, 2022. Pp. 256. ISBN 978-0-8229-4734-9. \$55.00 (hardcover).**

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Marci Baranski's *The Globalization of Wheat* is a determined book with a clear target audience. The book is earnest and revealing in the way that Baranski shares her own personal trajectory from biochemistry undergraduate who idolized Norman Borlaug to historian and international-development biologist who has written a highly critical account of the established orthodoxy of Borlaug's research and contributions to wheat production around the world. *The Globalization of Wheat* is a bold invitation to her international-development colleagues to consider a similar intellectual shift. Baranski clearly identifies those international-development practitioners who comprise the book's target audience, along with plant breeders, agronomists and other field-adjacent scientists. As someone with a foot in both worlds, Baranski's intention is to thoughtfully bridge the growing academic literature on the Green Revolution with the work of development practitioners and scientists, who, she notes, largely still celebrate the contributions of Borlaug and pursue his goal of achieving wide adaptation through plant breeding.

Borlaug is the main character, wheat is the subject, and wide adaptation is the central concept in Baranski's book. Research and experimentation in wide adaptation in wheat centres on genetic qualities such as daylight insensitivity, dwarfing and rust resistance. The notion that research in these areas could produce crops that were widely adapted across agro-ecological and political environments was one of the 'most important assumptions of the Green Revolution' (p. 10). This assumption, Baranski argues, led to disproportionate research and funding attention on large-scale, often irrigated, agriculture that made heavy use of fertilizer inputs. Today, this research bias continues to overlook small farmers who cultivate variable and sometimes marginal lands without the capital to spend on enormous quantities of fertilizer. Baranski writes, 'unfortunately, many agricultural research and development practitioners still believe that seed and fertilizer technologies are scale neutral ... due to a deeply internalized narrative of the Green Revolution' (p. 5). The persistent ideal of wide adaptation continues to allow scientists and their funders to disregard or minimize place-specific environmental, climatic, cultural and sociopolitical conditions that impact farmers. The one-size-fits-all appeal of wide adaptation thus contributes to the continued entrenchment of the negative effects of the Green Revolution over half a century since Borlaug's (in)famous Nobel Peace Prize. Enter Baranski's intervention for the international-development community.

*The Globalization of Wheat* moves between a variety of subjects and scales over five chapters. Chapter 1 is critical to Baranski's objective as the author evaluates Borlaug, the most iconic figure associated with the Green Revolution. Here we see the paradigm shift driven by Borlaug, who elevated a concept (wide adaptation) that was marginal even to the

Rockefeller Foundation's early agricultural programmes. Through Borlaug and the celebrated narrative of his triumphant shuttle breeding to end world hunger, wide adaptation achieved uncritical 'black-box' status within international development, despite significant critique from outside. Although the chapter is notable in its analysis of two of Borlaug's contemporaries, the cereal breeders Charles F. Krull and Keith W. Finlay, it misses an opportunity to engage more thoroughly with Borlaug's changing character over time, or his collaborations with Mexican breeders and politicians. The work of Jonathan Harwood is thoroughly cited, but otherwise the chapter largely maintains its focus on disrupting international development's blind celebration of Borlaug, rather than engaging with the most recent historiographical arguments about Mexico or India.

However, Baranski pivots in Chapters 2, 3 and 4 and achieves a layered case study on wide adaptability in India. These chapters are the heart of Baranski's analysis and are constructed from a variety of archival materials and interviews with retired and practising scientists. The detailed analysis of plant breeding and plant breeders in India, past and present, reveals the prestige of that specific science over agronomy, extension or other agricultural fields. It also shows the increasing centralization of the Indian agricultural bureaucracy. These are all factors contributing to the persistence of wide adaptability in wheat despite its disconnect from the realities faced by small farmers or the Indian government's stated goals of achieving and maintaining food security.

Chapter 5 leaps back in time to Mexico, the Middle East and North Africa for comparative cases that reveal the acknowledged inadequacies of wide adaptation as a research strategy for wheat beyond India. These comparative cases allow the author to narrow in on institutions, such as the International Maize and Wheat Improvement Center (CIMMYT) and the International Center for Agricultural Research in the Dry Areas (ICARDA), with important lessons about research bias and unquestioned assumptions for employees and funders of such institutions today. The book's sequencing here may be a little jarring to historians, but it is a reminder of the prime audience and the author's intention to write a hybrid book constructed from equal parts investigative reporting and archival research.

*The Globalization of Wheat* is very clear in its conclusions. The book's final remarks build upon the arguments described in the introduction. 'Technologies can help smallholder farmers', Baranski insists, 'but they often must be accompanied by socioeconomic factors such as land reform, strong farmer groups and cooperatives, access to markets, and improvements in education and extension. These efforts are more difficult than distributing seed and fertilizer' (p. 9). *The Globalization of Wheat* is an important book that should indeed be read and discussed by the international-development community. It should remind Green Revolution historians and historians of science generally of the still contemporary significance of their research, as well as of the worthwhile project of tuning an argument for high impact with a desired audience.