

Robert Zimdahl

Reflections on the Role of Ethics in Agriculture

Second Edition



Springer

Reflections on the Role of Ethics in Agriculture

Robert Zimdahl

Reflections on the Role of Ethics in Agriculture

Second Edition

 Springer

Robert Zimdahl
Department of Agricultural Biology
Colorado State University
Fort Collins, CO, USA

ISBN 978-3-031-62940-2 ISBN 978-3-031-62941-9 (eBook)
<https://doi.org/10.1007/978-3-031-62941-9>

1st edition: © Springer Dordrecht Heidelberg London New York 2012

2nd edition: © The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

If disposing of this product, please recycle the paper.

Preface

Hope resides in the future, while perspective and wisdom are almost always found by looking to the past.

Mortenson 2009, p. 2

The past is a foreign country.

They do things differently there.

Hartley 1967, p. 3

The first essay—*Weed Science: A Plea for Thought*—was written in 1991 and published as a symposium preprint by the Cooperative State Research Service¹ (CSRS) of the US Department of Agriculture. It served as a “cognitive launching pad for a weed science research planning symposium” convened by Dr. J. P. Jordan, Administrator of CSRS/USDA in Washington D.C., on April 15, 1993. The speakers and topics were²:

- R. Zimdahl, Colorado State University—Who are you and where are you going?
- J. R. Abernathy, Texas A&M University and D. C. Bridges, University of Georgia. Research priority dynamics in weed science.
- D. C. Bridges, University of Georgia—Impact of weeds on human endeavors.
- H. D. Coble, North Carolina State University—Future directions and needs for weed science research.
- F. D. Hess, Sandoz Agro, Inc.—Research needs in weed science.
- J. S. Holt, University of California, Riverside. Impact of weed control on weeds: New problems and research needs.
- D. L. Wyse, University of Minnesota—New technologies and approaches for weed management in sustainable agriculture systems.

¹In 1994, the Cooperative State Research Service became the Cooperative State Research, Education, and Extension Service (CSREES). In 2009, CSREES was reorganized into the National Institute of Food and Agriculture (NIFA).

²The papers were published in *Weed Technology* 8(2):387–413.

Dr. John A. Naegele (1993), in the preface for the symposium, noted the essay asked if the weed science research planning community could “overcome the paralysis of the pesticide paradigm and conceive a weed science research program that addressed both society’s perception of safety and the scientific community’s perception of risk?”

After 20 years, the 2012 edition asked if weed science had overcome the paralysis of the pesticide paradigm and if the discipline’s research emphasis had changed. Weed scientists know they have made and will continue to make contributions to increase food production through intelligent use of agricultural technology. The 2012 edition asked if the moral obligation to increase food production was sufficient justification for the benefits and harms of agriculture’s technology. A continuing, rigorous examination of agriculture’s goals and its technology was advocated because of increasing public concern about its necessity and value to increase food production and improve public health.

Agricultural scientists have a research consensus, and thus a paradigm, which should be explored. Since 1800, indisputable evidence shows agriculture has enabled growth of the earth’s population, the majority of whom are better fed, sheltered, protected from disease, richer, and live longer than their parents and grandparents. All engaged in agriculture take well-deserved pride in how agricultural practice in developed and developing nations has contributed to these accomplishments. The agricultural view is the modern technology used by nearly all parts of the dominant agricultural enterprise is necessary to accomplish agriculture’s continuing moral and production challenge of feeding a growing,³ more demanding world population. I suggest agriculture practitioners should engage in regular discussion of the necessity and risks of all present and proposed agricultural technology. Discussions must include scientific evidence and moral, value-laden arguments. Separating issues of fact from issues of value is fundamental to debate about agriculture’s—the essential industry—future.

After another decade, it is appropriate to revisit my thoughts from 1991 and 2012. It is appropriate to ask again if the weed science community has “overcome the paralysis of the pesticide paradigm” and if weed scientists and the discipline’s research emphases have changed their focus and goals. The 2012 edition asked if my colleagues had thought about the direction and goals of their science and whether they were acceptable or should be modified. Have they developed reasons to explain why modification is or is not necessary? This edition expands the plea for thought to all engaged in agriculture.

For many years, the enormously successful agricultural system in the developed world has relied on and promoted herbicides as the technique of choice for weed management. There has been great (sometimes complete) reliance on them. Weed control and management were not paralyzed by herbicides but their dominance

³World population growth rate peaked at 2.1% /year in 1962. It has steadily declined since then 0.87% in 2021. <https://ourworldindata.org/grapher/population-growth-rates>. Accessed February 2024.

continues. Agricultural scientists remain confident of their basic faith in the possibility of increasing production through intelligent use of ever more efficient agricultural technology, including pesticides. Increasing production has been and remains the moral obligation to feed people. This edition asserts the moral claim of feeding the world still dominates and questions if it is justified by rational scientific and moral arguments about the evidence of human and environmental harm, public fear of agricultural technology, and concern about food quality.

The original essay was not intended to demean, diminish, or only be critical of agriculture's accomplishments. Since 2012, agricultural technology and practice have changed. For example, weed scientists are striving to manage the wicked problem of herbicide resistance (Coble and Schroeder 2016; Shaw 2016). Invasive species received special emphasis from the Weed Science Society when a new journal was created in 2008. In this, presumably the last version of this essay, I continue to ask if anyone cares. Why does the pesticide paradigm still dominate? Knowing about the mistakes and successes of the past is vital, not to return to the past, but to learn from it (Cox 2009, p. 57).

The title of this edition reflects the increase in emphasis on agriculture including weed science. To retain the intent of the original essay, the chapter titles and most of the literature cited have been retained. Chapters 2 and 3, with minimal changes, appear as they did in 1991. The essential message of Chaps. 1 and 4 was retained and both have several additions. Chapter 5, a brief conclusion in 2012, is longer and more critical. Editing of all chapters was to correct mistakes, acknowledge the passage of time, include knowledge gained, and describe new concerns.

Sen. Daniel Patrick Moynihan is purported to have said: "We each may be entitled to our own set of opinions, but we are not entitled to our own set of facts." I have tried to get the facts right. There are 66 new literature citations, 29 post-2012. The opinions are, of course, mine. The purpose of this version is identical to the original. It is to plea for thought about who we are, where we have come from, where we are going, and where we ought to go. I am and have been concerned that my plea has been dismissed because I am a curmudgeon whose thoughts are not relevant to modern agriculture. I look forward to hearing whether this revision accomplishes or fails to achieve my plea for thought.

Fort Collins, CO, USA

Robert Zimdahl

Literature Cited

- Coble, H.D., and J. Schroeder. 2016. Call to action on resistance management. *Weed Science* (Special issue): 661–666.
- Cox, H. 2009. *The future of faith*, 245 pp. New York, NY: Harper Collins.
- Hartley, L.P. 1967. *The go-between*, 311 pp. New York, NY: Stein and Day.

- Mortenson, G. 2009. *Stones into schools – Promoting peace with books not bombs in Afghanistan and Pakistan*, 420 pp. New York, NY: Penguin Books, Inc.
- Naegele J. 1993. Preface. In *Weed science – A plea for thought*, ed. Zimdahl, R.L., 34 pp. Washington, D.C.: U.S. Department of Agriculture. Cooperative State Research Service.
- Shaw, D.R. 2001. The “wicked” nature of the herbicide of the resistance problem. *Weed Science* (Special issue): 552–558.
- Zimdahl, R.L. 1993. *Weed science – A plea thought*, 34 pp. Washington, D.C.: U.S. Department of Agriculture. Cooperative State Research Service.
- Zimdahl, R.L. 2012. *Weed science: A plea for thought—Revisited*, 73 pp. New York: Springer Briefs in Agriculture.