Ethical issues in agricultural production and education

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Ethics in the agricultural curriculum

• Historically, those involved in food production, research, or education have had limited involvement in ethical discussions

• There is a perception that provision of food for humanity was important to the greater good of society

• How could there be any ethical or moral issues associated with the reduction or elimination of starvation and hunger?

• So, while ethics and morals have been cornerstones of societal discussions for thousands of years, issues of agricultural ethics have been raised for a relatively short time
Changes in food production

• The development of knowledge regarding food production, and its application to increase available food in the world has risen dramatically in the last hundred years

• While there is a slight increase in the land area used for production, most of the increase has come from greater intensity of production, including:
  • Improved genetic strains of plants and animals
  • Increased use of irrigation
  • Increased fertilizer usage (especially nitrogen)
  • Increased pesticide usage
As a result, agriculture has changed, including differences in:

- Structure of farms
- Methods of animal production
- Methods of crop production
- Methods used to create plant cultivars
- Amount of international food trade
- Food security
- Safety of food
Agriculture and the public

• These are significant changes that impact all of humanity.
• The general population is asking many important questions about agriculture and food related to these changes, including:
  • Will (and should) the family farm survive?
  • Is there a fair and equitable availability of food (within geographical regions, within countries, within socioeconomic groups)?
  • How should food animals be raised, and what impact does production method have on profitability and environmental quality?
  • What is the best way to manage soil fertility for food plant production?
  • What does ‘best’ mean in terms of crop yield, economic return/unit land area, fertilizer availability to plants, fertilizer movement to groundwater, and other issues?
  • The same questions can be asked about management of weeds, insects, and diseases
Agricultural ethics

• These questions require answers more complex than scientific responses alone.
• We are educating our students to understand the science, yet they are going to contribute to society in a broader context. They will bring credentials to their first jobs. We prepare them with technical knowledge, yet how will they respond to these broad issues that include both science and society?
• They will need to know how their agricultural careers impact these issues and will need to answer many of these kinds of complex questions for themselves.
• Often our students may not realize that answering questions such as “how do you best manage soil fertility” includes application of both science and values.
• Our role as educators should be to help students realize that how we produce food is not a value-free process, but involves ethical decisions.
This impacts what we teach

• Primarily want our graduates to understand content knowledge and skills. Yet there is far too much material to cover in a typical course.
• In the United States higher education system, a standard science course without a laboratory meets for 50 minutes 3 times a week for 16 weeks, a total of 40 hours.
• I started my faculty career teaching genetics in 1977. I was told at the time that global genetic knowledge doubled every three years. If this was true and continued to be so from that time until today, there is now several thousand times more genetic knowledge than there was in 1977.
• But the introductory genetics course in 2015 still meets for a total of 40 hours. If appropriate content was taught and mastered by students receiving good grades in 1977, how can we say that sufficient content is mastered 38 years later?
Do we continue the process?

- There is always the challenge to ‘fill the cup’ of student learning with the latest information that we feel is the most appropriate 40 hours of knowledge in our discipline.
- I’m changing my perspective
- I teach an organic gardening seminar every fall for first-year college students (18 years old)
- The seminar only meets one hour a week for 16 weeks. I thought I should give the students details of soil organic matter and fertility management, seeding and vegetative propagation, weed management.....
- Added field and greenhouse growing of food several years ago
- Didn’t cover as much content
- “Eating my own food 30 seconds after I harvested was the greatest experience I’ve ever had”
- “You taught me the reality of food”
What should we teach?

- These same issues hold for all the discipline areas taught in agricultural curricula
- As our knowledge about food production increases, we can teach a smaller and smaller proportion of that knowledge in a given course
- So what do we do?
- I’m becoming more comfortable with ‘letting go’ of the need to teach all critical content (whatever that is)
- Teach the reality of food
- Increasingly I believe we should consider helping our students learn how to learn
- Emphasize critical thinking and problem solving, not memorization
Adding ethics into our disciplinary teaching

• The reality of food is that it impacts everyone
• All of society is interested and invested
• Consider if we taught content and context
• Is/are there right ways to create food?
• One of the many definitions of ethics is ‘doing the right thing’
• Agricultural ethics could then be considered making the right choices about food and food production
• There is value in helping our students understand this
• What if we incorporated ethics into our undergraduate or even graduate-level courses?
Ethics in the agricultural curriculum

• Bringing ethics into an agricultural curriculum can help our students understand the processes involved in making the right choices
• We can give some background on different processes people use for ethical decision-making
• We can provide students with some examples of that decision-making using agricultural topics
• We can provide students with the opportunity to make their own decisions, and to examine the reasons and methods they use to reach those decisions
A core agricultural ethics course

- A number of agricultural curricula require all degree-receiving students complete a core course in ethics
- In some cases the course is offered through a philosophy department
- Others offer through the agricultural curriculum
- Often a single course for all students
- Team-taught by ethicist and agricultural scientist
- Course structure varies, but generally starts with introduction to ethical theories and how they are used in ethical decision-making
- Students then explore the ways that ethical theories are used in making decisions on agricultural topics
Positive features of a core course

• All students receive a course in ethics
• Both an expert in ethics and an expert in agricultural sciences are involved in teaching
• Sufficient time can be devoted by the ethicist for students to explore the rigor of ethical theories
• Sufficient time can be devoted by the scientist for students to understand the role that values play in agricultural sciences
• All agricultural disciplines at the institution can be represented in a single course, giving cross fertilization of topics and disciplines for the students
Challenges of a core course

• Most agricultural curricula have little room for additional requirements
• Getting agricultural faculty to agree to add a required course to all curricula in an institution is difficult (especially an ethics course)
• A single course may be too generic
• There is added cost for faculty salaries
• Students are often reluctant to embrace a required course
Considerations of a core course

- If desired, groundwork will need to be done to convince faculty it is of sufficient value to be required
- Ethicist will need to have background and interest in agricultural issues
- Agricultural scientist will need to have background and interest in ethical issues
- Determine whether it is more desirable at a specific place in the curriculum sequence or can be taken at any time
- Must offer with sufficient frequency that it can fit into all student course schedules
- Course can be taught in depth (offered 3 times a week) or more as a survey course (once a week)
Decentralized teaching of agricultural ethics

- Another option is to teach topics in ethics within specific content-related courses
- Can include modules in ethics
- May incorporate ethics into discussions of specific discipline topics
- Can offer the topic in an introductory course, a capstone course, or an upper level course
- Or the topic can be included in a number of different courses
- Ethics can be discussed once or a number of times in each course
Advantages of decentralization

- It may be less difficult convincing faculty in a single department, or even single faculty within a department, of the value of ethics teaching
- Ethics are discussed specifically in the context of the students’ discipline
- Students can more readily see the relationship of their discipline to ethical decision-making
- No new course is created, it can fit within existing curricula
- Extra faculty salary not required
- Offers flexibility in the amount of ethics covered and where it fits within a curriculum
Disadvantages of decentralization

- Agricultural faculty may not feel qualified to teach ethics
- Faculty may not see the value of teaching ethics
- Faculty may feel they don’t have the time
- If incorporated into some disciplines and not others, then not all graduating students will receive the exposure
- Students may receive little or no exposure to ethical theories
- May be too superficial to be of benefit
- Students in a single discipline or course may be homogeneous, resulting in exposure to few perspectives
Considerations of decentralization

- Individual faculty can often add a topic on their own, but some central decision would need to be made to require ethics in one or more courses in a discipline.
- Centralized decisions also made if ethics are to be incorporated into one or more courses in all disciplines.
- Should an ethicist be brought in for a guest lecture or series, or should agricultural faculty be responsible for all ethics instruction?
Teaching techniques

• The ‘easiest’ way to teach agricultural ethics may be through straight lecture, assigned readings and then student evaluation of learning
• Doesn’t work any better in ethics than in any of our disciplines
• Case studies are particularly effective
• Many are published
• Create your own
• Make them tight, sometimes students pick on the details and don’t benefit from the broader issues
• Have students create case studies
• Group work, inside or outside of class, can be particularly effective, especially if there is variation in experiences, values, and opinions
Techniques

• Stand and speak on a topic with different student perspectives
• Student debates, taking sides opposite their own and arguing effectively
• Have students take quizzes on content topics and interpretation
• Grade quiz and then have students work in groups to answer
• Re-grade
• Create posters on a topic, connecting presentation to something in popular culture
• Bring in the fine arts, where students sculpt, sing, or dance their responses to an issue
• Include references, even in the fine arts
• Topics for discussion or assignments can frequently be taken from news media
Arguments against teaching agricultural ethics

- Focus on two areas
- One is that there is no room
- Consider the disciplinary quantity of what students should master, and the habits of learning to learn
- The other is that it is inappropriate in a science curriculum
- Realize that all science is value-laden, particularly interpretation and application
The role of agricultural ethics

• As our students graduate and contribute to greater society with their careers, they will influence the food system, public perception, policies, and regulations

• The best way they can do this is to be grounded in the sciences and understand the values and ethics associated with decisions made in our food systems