**Reference list for BIOL 416 Terrestrial Ecosystems Fall 2019**

(This list will be updated (using yellow highlighting) through the course based on your suggestions and our additional reading)

**Ecosystem Ecology core papers:**

Costanza, R., R. dArge, et al. (1997). "The value of the world's ecosystem services and natural capital." Nature 387(6630): 253-260.

Elser, J.J., and E. Bennett. 2011. A broken biogeochemical cycle.  Nature. 478: 29-31.

Levin, S. A. (1992). The problem of pattern and scale in ecology. Ecology 73: 1943-1967

Odum, E. (1969) The Strategy of Ecosystem Development. Science 164: 262-270

Rockstrom et al (2009). A safe operating space for humanity. Nature 461, 472-475.

Steffen W. et al (2015) The trajectory of the Anthropocene: The Great Acceleration. The Anthropocene Review 1–18.

Vitousek PM, Howarth RW (1991) Nitrogen Limitation on Land and in the Sea - How Can It Occur. Biogeochemistry 13:87-115

Vitousek et al, (1997) Human-dominated Ecosystems – Science 272:494-499

Wiens, J. A., (1989) Spatial scaling in ecology. Functional Ecology, 3: 385-397.

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**Agroecosystem and Global Food Demand papers:**

De Schutter, O. (2010). On the Right to Food. United Nations General Assembly Human Rights Council Report A/HRC/16/49.

Foley, J et al. (2011). Solutions for a cultivated planet. Nature. 478: 337–342

Godfray, H.C.J. (2015). The debate over sustainable intensification. Food Security 7:199-208.

Gomeiro et al (2011). Environmental Impact of Different Agricultural Management Practices: Conventional vs. Organic Agriculture. Critical Reviews in Plant Sciences, 30:95–124, 2011

Kendell, H.W. and Pimentel, D. (1994). Constraints on the Expansion of the Global Food Supply. Ambio 23 (3): 198-205.

Loos et al (2014). Putting meaning back into “sustainable intensification”. Frontiers in Ecology and Environment 12(6):356-361.

Maeder, P. et al. (2002). Soil Fertility and Biodiversity in Organic Farming. Science 296, 1694 (2002)

Mueller ND et al. (2012). Closing yield gaps though nutrient and water management. Nature 490: 254–57.

Naylor, R.L. (2009) Managing Food Production Systems for Resilience. In: Chapin, F.S. III, Kofinas, G.P. and Folke C. (2009). Principles of Earth System Stewardship – Resilience-based Natural Resource Management in a Changing World. Springer.

Pimental, D. et al. (2005) Environmental, Energetic, and Economic Comparisons of Organic and Conventional Farming Systems. Bioscience 55(7):573-582.

Searchinger, T., et al. (2013). Creating a Sustainable Food Future – The Great Balancing Act. World Resources Institute Working Paper 2013.

Tilman, D. et al (2002). Agricultural sustainability and intensive production practices. Nature 418:671-677.

Tilman, D. et al (2012). Global food demand and the sustainable intensification

of agriculture. PNAS 108(50):20260-20264.

Trewevas, A. (2001). Urban myths of organic farming. Nature 410:409-410.

Wezel, et al, 2014. Agroecological practices for sustainable agriculture. A review. Agron. Sustain. Dev. 34:1–20

**Reference Books (I have copies of most of these if you cannot locate them in the library):**

Brady N.C. (2001) The Nature and Properties of Soils. 13th edn. Prentice Hall.

Chapin, F. S., III., P. A. Matson, et al. (2011). Principles of Terrestrial Ecosystem Ecology. 2nd edition. New York, Springer.

Chapin, F.S. III, Kofinas, G.P. and Folke C. (2009). Principles of Earth System Stewardship – Resilience-based Natural Resource Management in a Changing World. Springer.

Coleman, D.C., D.A.J. Crossley, and P.F. Hendrix, Fundamentals of Soil Ecology. 2nd ed. 2004, Amsterdam: Elsevier.

Jacobsen, M. C., R. J. Charlson, et al. (2000). Earth System Science - From Biogeochemical Cycles to Global Change. Amsterdam, Academic Press.

Montgomery, C. (2007) . Dirt: The erosion of civilisations. University of California Press.

Paul, E.A. 2015. Soil Microbiology, Ecology and Biochemistry. 4th edn. Academic Press.

Polin, M. 2006. The Omnivore’s Dilemma. Bloomsbury.

Ponting, C. (2007). A New Green History of the World: The Environment and the collapse of great civilisations. 2nd edition. Penguin.

Schlesinger, W. H. (1997). Biogeochemistry - An Analysis of Global Change. San Diego, Academic Press.

Suzuki, D. and H. Dressel (2010). More Good News: Real solutions to the global eco-crisis. Vancouver, Greystone.

Wright, R. (2004). A Short History of Progress. New York, Carroll and Graf.

**Interesting electronic media links:**

Food Inc. Documentary film about the industrialisation of food production. Excellent. HIGHLY RECOMMENDED. Available via Queen’s library video collection entitled Criterion on Demand at <https://media3-criterionpic-com.proxy.queensu.ca/htbin/wwform/006?T=AL111097>

 The Other Inconvenient Truth – Jonathan Foley (17 min)

<https://www.youtube.com/watch?v=1US4jjWtua8>.

Future of Food: A Plan to Feed the World – Jonathan Foley (8 min) <https://www.youtube.com/watch?v=Spgo4nNYsuQ>

Future of Food: Food Security in an Insecure World. A panel discussion (48 min) <https://www.youtube.com/watch?v=8jvRB8U8vEw>

Future of Food: Why Sustainable Food Systems Matter. A panel discussion (52 min) <https://www.youtube.com/watch?v=YEGISWTEgyU>

Just Eat It. An excellent documentary video on the food waste issue

<http://www.foodwastemovie.com/about/>

Hijacked Future. An excellent Canadian documentary on the increasing dependency on global seed producing corporations to supply and control our food supply. <https://www.youtube.com/watch?v=3IgAe2bdoAc>

Feeding9Billion Challenge. A fantastic educational initiative out of the University of Guelph. <https://feeding9billion.com/>

Feeding Nine Billion Video 1: Introducing Solutions to the Global Food Crisis by Dr. Evan Fraser (Univ. of Guelph)<https://www.youtube.com/watch?v=raSHAqV8K9c>

The Food of the Future. A stimulating documentary outlining alternative/unusual food items that are likely to become very common in the future. <https://www.youtube.com/watch?v=KpCgzk_4Yp8>

Dutch Institute of Food and Design exhibition on the Future of Food: [https://ingeniumcanada.org/newsroom/new-exhibition-challenges-visitors-to-imagine-the-future-of-food](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fingeniumcanada.org%2Fnewsroom%2Fnew-exhibition-challenges-visitors-to-imagine-the-future-of-food&data=02%7C01%7Cgroganp%40queensu.ca%7Cef57dddc0c9d418faa0208d7355ce0ee%7Cd61ecb3b38b142d582c4efb2838b925c%7C1%7C0%7C637036545338593710&sdata=MhOTi1slRnSxtXhSdQUwTddjPPq6wG3C8nHUOzIGQPc%3D&reserved=0) ; [https://thedifd.com/about-us/](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fthedifd.com%2Fabout-us%2F&data=02%7C01%7Cgroganp%40queensu.ca%7Cef57dddc0c9d418faa0208d7355ce0ee%7Cd61ecb3b38b142d582c4efb2838b925c%7C1%7C1%7C637036545338583707&sdata=e8pqc9v2H50PyEqWg9guxJiQ3D2wXbbnNdaqeLmkxAg%3D&reserved=0)

GMOs: <https://www.youtube.com/watch?v=ynyB2fNn8kQ> ; <https://www.youtube.com/watch?v=EzEr23XJwFY>

Agroforestry: <https://www.youtube.com/watch?v=dbRSSYB3nSI> (introduces benefits of agroforestry as well as some societal barriers that hinder the current success of agroforestry);

<https://www.youtube.com/watch?v=pP5tZc9JIg&list=PL450D8DF5E91BEF76&index=17>

(some concerns facing implementation of novel technologies that increase crop yields in regions of Africa)

Organic food and certification issue: <https://www.youtube.com/watch?v=7g77Wrn_j_Y>

Hydroponics for tomato production: [The Future of Farming: Hydroponic Tomatoes](https://www.youtube.com/watch?v=bRyBKWqLzI8)

Meat production and consumption: <https://www.ted.com/talks/allan_savory_how_to_green_the_world_s_deserts_and_reverse_climate_change#t-763944>

Cowspiracy. Documentary film. <http://documentary-movie.com/cowspiracy-the-sustainability-secret/>

A Place at the Table (90min documentary on food insecurity in the U.S.) <http://www.magpictures.com/aplaceatthetable/>

Organic farming is 'much worse' for the climate than conventional food production

<https://bigthink.com/surprising-science/does-organic-food-harm-the-environment?rebelltitem=1#rebelltitem1>

Industrial Agriculture – Union of Concerned Scientists <https://www.ucsusa.org/food_and_agriculture/our-failing-food-system/industrial-agriculture/hidden-costs-of-industrial.html>

University of California at Berkeley food institute: <http://food.berkeley.edu/>

World food crisis 2008 European Union summary report on the causes: <http://ec.europa.eu/environment/integration/research/newsalert/pdf/225na1_en.pdf>

Cornell Soil Testing Services: <http://soilhealth.cals.cornell.edu/testing-services/individual-soil-analyses/>

Joel Salatin TED Talk: Cows, Carbon and Climate <https://www.youtube.com/watch?v=4Z75A_JMBx4>

Local Kingston-based organisations addressing food supply, accessibility and quality issues:

Loving Spoonful <https://www.lovingspoonful.org>

Martha’s Table <http://www.marthastable.ca>

Poverty/Food security insights on the real issues: <http://www.makethemonth.ca/>

Elaine Power’s op ed critiquing food banks as a solution to food insecurity: [https://www.theglobeandmail.com/opinion/its-time-to-close-canadas-food-banks/article587889/](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.theglobeandmail.com%2Fopinion%2Fits-time-to-close-canadas-food-banks%2Farticle587889%2F&data=02%7C01%7Cgroganp%40queensu.ca%7C80f34a2a4a0041343e8408d73e9277f5%7Cd61ecb3b38b142d582c4efb2838b925c%7C1%7C0%7C637046671160377832&sdata=Kp1h%2BZV6rOxXs%2FUslir4UULH74NINInRc2LVoit855M%3D&reserved=0)

The Biggest Little Farm (documentary about a city couple who leave regular life to develop a sustainable farm). Available via Queen’s library video collection entitled Criterion on Demand at <https://media3-criterionpic-com.proxy.queensu.ca/htbin/wwform/006?T=110082E>

**Local farms and kitchen gardens we may visit during the course:**

Forman farms – Charlie Forman - [http://formanfarms.ca](http://formanfarms.ca/)

Ravensfield farm – Titia Posthuma- <http://www.ravensfield.ca>

Limestone Creamery: <https://limestonecreamery.deliverybizpro.com/home.php>

Bellevue House Kitchen Gardens: https://www.pc.gc.ca/en/lhn-nhs/on/bellevue

Ironwood farm <http://www.ironwoodorganics.ca>

**High quality relevant journals:**

[Agriculture, Ecosystems and Environment](http://www.journals.elsevier.com/agriculture-ecosystems-and-environment/)

[Bioscience](http://www.bioone.org/bioone/?request=get-journals-list&issn=0006-3568)

[Ecological Applications](http://www.esajournals.org/loi/ecap)

[Ecosystems](http://link.springer.com/journal/10021)

[Environmental Research Letters](http://iopscience.iop.org/1748-9326/)

[Frontiers in Ecology and Environment](http://www.frontiersinecology.org/front/)

[Global Change Biology](http://www.blackwell-synergy.com/Journals/member/institutions/issuelist.asp?journal=gcb)

[Global Environmental Change: Human and Policy Dimensions](http://www.journals.elsevier.com/global-environmental-change/)

[Issues in Ecology - Ecological Society of America](http://www.esa.org/esa/?page_id=1638)

[Nature](http://www.nature.com/)

[Proceedings of the National Academy of Sciences (PNAS)](http://www.pnas.org/)

[Science](http://www.sciencemag.org/)

**Resource links:**

Ecological Farmers Association of Ontario (<https://conference.efao.ca)>

[The Greening of Canadian Agriculture - MacDonald Laurier Institute](http://www.macdonaldlaurier.ca/files/pdf/The-Greening-of-Canadian-Agriculture-November-2012.pdf)

[Organic Agriculture Center of Canada](http://www.dal.ca/faculty/agriculture/oacc/en-home.html)

[Food down the Road - Kingston branch of National Farmers Union](http://www.fooddowntheroad.ca/)

[Ecological Society of America](http://www.esa.org/esa/)

[British Ecological Society - Public Policy Initiative](http://www.britishecologicalsociety.org/public-policy/)

[Intergovernmental Panel on Climate Change](http://www.ipcc.ch/)

**Internships and Volunteering on Farms:**

<http://wwoof.net/> - volunteering opportunities on organic farms. This is a great way to travel and gain experience.

<http://craftontario.ca/regions/> - This organization lists formal full season internships across Ontario on ecological farms, not the business side but either of these options could be great ways to gain on the ground experience. I would suggest working on a bigger farm to get a sense of the industry. I know many of the farms so if you are considering this option get in touch.

**Resources on the foundations of sustainable farming:**

* [www.soilandhealth.org](http://www.soilandhealth.org/)
* <http://www.bionutrient.org/library/soil-nutrition-conference-archive>
* <http://www.nofamass.org/resources/nofa-conference-audio-project>

**Gaining Qualifications**

<http://ccaontario.com/> - This is a straight forward accreditation achieved through a combination of relevant post-secondary study and an exam. It is orientated towards advising for farmers on crops and production.

**Organizations**

Ecological Farmers Association of Ontario:  <https://efao.ca/>  - An affordable organization with a newsletter and AMAZING resource library of agricultural books that you can access for free by ordering on-line and having them shipped to your door. And you ship them back, all free with membership. They also offer workshops and farmer - to - farmer mentorship programs.

Canadian Organic Growers: cog.ca - A national organization promoting organic and sustainable farming, quarterly magazine and events, network.

The Innovative Farmers Association of Ontario <http://www.ifao.com/>