



# YALE NATIONAL INITIATIVE

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Curriculum Units by Fellows of the National Initiative  
2023 Volume V: Nature-inspired Solutions to Disease Problems

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## **Coffee, Cacao, and Chacras – Examining Sustainable Agroecosystems**

Guide for Curriculum Unit 23.05.03, published September 2023  
by Michael A. Doody

This two-week unit on sustainable agriculture is designed for AP Environmental Science but can be easily scaffolded for introductory and intermediate levels of the same topic. Students start by learning about the environmental impacts of the Green Revolution. Focus shifts to less impactful agricultural methods, starting with agroecosystems, which are best defined as seemingly naturally functioning ecosystems that also produce food, fiber, and/or other agricultural products. Students examine polyculture and integrated pest management to identify and explain features that fit the agroecosystem approach. They also survey Indigenous agricultural practices to look for sustainable features. Classroom activities include the creation of a driving question board, development of explanatory models that showcase the sustainability of agroecosystem approaches, the development of an action plan to increase the sustainability of our campus farm, and taste tests of sustainable and fair-trade coffee and chocolate from Costa Rica. This unit satisfies AP-ES Content Standards EIN-2 and STB-1 and Science Practices 1.C, 4.A, 7.A, 7.B, and 7.E.

(Developed for AP Environmental Science, grades 11-12; Environmental Science Issues, grades 10-11; and Natural Resources and Ecology, grades 9-10; recommended for Ecology and Biology, grades 9-10)

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