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 Sustainability is Growing

The world’s population is increasing faster and faster every decade, with nine billion people projected to be sharing this earth by 2050 (Thomas). Along with this exponential growth comes the demand for resources that will also sharply increase; primarily, the need to feed the population will become intensified. If humans use the agricultural system being used today to feed the growing population, the land will eventually, and soon, be depleted it of all its nutrients, thus healthy food will eventually demise, and so will the human race. For sustainable agriculture to become the prevalent system used for producing our food, it will take knowledgeable people to operate and gain the skill behind sustainability. Thanks to the many universities all over the country and all over the world, the access for students to learn how to create a more sustainable world is very much in reach.

Sustainable agriculture is a type of food production system that consists of a few main aspects that the current system, known as industrial agriculture, does not consist of; the sole purpose of industrial agriculture is to focus on economic benefits by producing as much food as possible, but consequently ends up degrading the land, contributes to fossil fuel emissions, and, ultimately, destroys the health of both the Earth and the consumers (Muir). The primary purpose of *sustainable* agriculture, however, is to ensure both economic growth and environmental health, so that future generations can use the same land being used today; the various methods that are involved in sustainable agriculture involve conserving the Earth’s nutrients by rotating crops by season, minimizing pesticide use in fertilizers, managing pests with natural, organic materials, and many other ways that contribute to an efficient world (Allen). To move towards this type of system, these methods must be taught through training, practice, and experience, and luckily, many colleges all over the country offer different programs and curriculums to teach students just that. For the visual and linguistic learners, some colleges offer extensive course schedules, with a curriculum that can involve up to ten classes, all of which study every aspect of sustainable agriculture; other colleges have farms, labs, and gardens that provide hands-on learning for the kinesthetic students to learn the subject.

If a high school student is interested in majoring in sustainable agriculture, it is important they prepare as much as possible in their high school careers so that they can gain a basic idea behind the scientific subject. Such classes should involve at least three years of writing and composition, and at least one of statistics, chemistry, biology, and even calculus, as some colleges make it a point to review AP Calculus scores (“Transfer Requirements…”). Simply getting involved in extra-curricular activities by volunteering at agricultural sites such as farms and gardens is a great way to better extend a student’s knowledge of the art of agriculture.

One of the many great programs offered through colleges can be found in the University of California, Santa Cruz, in the Agroecology Program, which is considered the first university to create a curriculum based on the practices behind “sustainable agriculture.” Founded by Stephen Gliessman in 1981, the program focuses on polyculture methods—simultaneous crop-farming instead of single-crop farming—allelopathy, the study of natural weed-control techniques, finding organic fertilizers, and many other practices that create a more sustainable system (Allen). UC Santa Cruz offers not only an extensive course schedule, amounting to around ten classes, that start from The History and Development of Agriculture to the Adoption of Sustainable Farming Practices that teach all aspects of sustainable agriculture; they also have a garden on campus and a farm nearby, great places for students to practice and gain hands-on experience to further their knowledge (“Course Outline”). The garden, known as the Kresge Garden Cooperative, is located near Kresge College, which is considered the “environmentally-friendly” campus and it provides and outdoor laboratory for agroecology-interested students to practice sustainable gardening (“Kresge Garden Club”). Another program offered at UCSC is the Agroecology Practicum, a summer session that also allows students to work outdoors in the nearby People’s Farm and Garden. This summer program gives students the opportunity to work with the staff of the garden to learn the logistics behind gardening and marketing practices (“Center Expands Opportunities…”). The executive director of the Center for Agroecology & Sustainable Food Systems, Daniel Press, comments on the farm, saying he encourages “anyone who might be interested in learning more about organic farming, gardening and sustainable food systems” (Press) to join the farm’s program. The most unique aspect that UC Santa Cruz offers, however, is the Program in Community and Agroecology, *PICA*, a small, student-community that usually houses about twenty students at a time. Lead by Stephen Gliessman, PICA focuses on how communities can work together to create sustainable agriculture systems together; in a way, it is considered a large and living experiment that students live within, where they practice and master growing their own food from their PICA garden (Vadakan). Gliessman states, “The underlying principle of our work is to understand better the ecological processes of natural ecosystems and apply our findings to what are largely manipulative agricultural systems” (Allen), and student Peter Isaksen, supports this principle; he says, “Working together in the garden and eating with the people I work with shows me the organic way community develops and the importance of community… It has helped me establish a real sense of responsibility and independence” ("What PICAn’s Have To Say”). The university as a whole offers great programs that can essentially satisfy any student interested in sustainable agriculture, and there are many other schools that live up to UCSC’s standards.

The University of California at Davis is known as the school of “Aggies,” the students who, unlike Santa Cruz’s students, are all mostly focused on sustainable agriculture. The Agricultural Sustainability Institute at UC Davis is the main curriculum, with focuses emphasized on ensuring access to healthy, organic food to the community; like UCSC, it also provides the opportunity of an on-the-farm experience for students interested in the field. The course load is not as extensive as UC Santa Cruz’s; it consists of only about five classes, starting from an introduction to sustainable agriculture to students creating a capstone project, where they conduct their own research project and experiment involving a sustainable method of agriculture (*CAFES*). Currently directed by Tom Tomich, ASI features many programs such as the Student Farm and Russell Ranch, which are farms where students and interns can work outside of the classroom, practicing the methods of sustainable farming. The Student Farm, founded in 1977, is mainly to create an outdoor site where students can practice the many workings of sustainable agriculture, whether it is a research project based on the data of the pH levels of the soil, or experimenting with different types of natural weed-killers. Internships offered at the farm can be accessed by attending an Introductory Tour, which allow students to tour the farm and get to know the kind of jobs they would be performing in the real world of agriculture. Russell Ranch, like The Student Farm, is another impressive agriculture feature at UC Davis; it is a 300-acre experimental farm that serves as a place to study and work the different types of sustainable systems and methods (“Internships & Volunteer Positions”). Students also do research projects and reports based on experiments and lab work they conduct themselves at these two farms. Examples of Davis students’ work include identifying and calculating different environmental footprints; testing water and nutrient levels of field; creating a sustainable waste management, and finding ways to control surrounding ecosystems to enhance agricultural sustainability (SAREP). The curriculum at UC Davis has many opportunities to study and exemplify both real and relevant agricultural problems in the world, a great incentive for students to focus on, rather than obscure, hypothetical research on irrelevant issues.

Cal Poly, another school that offers a great agriculture program, uses the same type of curriculum by requiring students focus on a specific study and write scientific reports on their findings and experiments. The California Polytechnic State University in San Louis Obispo has a similar program to the two previous colleges; it has a number of different and unique programs that offer good, hands-on experience for students who plan on majoring in sustainable agriculture. They manage nearly 9,000 acres that is devoted to providing a “living laboratory” for agriculture students to practice all of the methods and techniques involved in sustainable agriculture, a shared aspect with both UCSC and UC Davis (*CAFES*). The college also has many partnerships that students can work with, such as the Center for Sustainability, the California Institute for the Study of Specialty Crops, the [Coastal Resources Institute](http://www.calpoly.edu/~cri/), and others that allow a greater playing field for students to get involved with. Some of the internships that the college offers are the Sustainable Stewards, which gives students the opportunity to work on important agriculture aspects such as composting, native-plant gardening and research; these students will not only thoroughly learn the works behind sustainability, but can even get paid for interning, working only eight to ten hours a week. As “sustainable agriculture” is a broad genre of a subject, students at Cal Poly cannot solely major in the genre; they can minor in it, and major in one of the following specific areas: they can receive an M.S. in Agribusiness, a Master’s in Agricultural Education & Communication, major in BioResource and Agricultural Engineering, achieve an M.P.S. in Dairy Science, Food Science/ Nutrition, Agricultural & Environmental Plant Species, Natural Resources Management & Environmental Sciences, Wine & Viticulture, and many more (*CAFES*). To minor in sustainable agriculture, students must complete four units of organic agriculture, four units of internship in agriculture, four units in holistic management, and two units on an organic farming enterprise project. A unique aspect about Cal Poly’s agriculture program is the amount of scholarship students can apply for, an aspect that both UC Santa Cruz and Davis generally do not offer in such quantities; there are over one hundred different scholarships that reward exceptional students in specific fields. Scholarships include the Agribusiness Department Merit Scholarship, which supports the top incoming freshmen who plan to major in Agribusiness; the Tony and Janet Marino Scholarship supports the most outstanding junior or senior in the wine and viticulture major; and the list goes on, with scholarships supporting nearly every major offered at the college (“Scholarships…”). The school values student dedication to the study, and by offering incentives to students who successfully excel in the field demonstrates the importance and quality of the agriculture institute itself at Cal Poly.

The sustainable agriculture field offers majors such as agribusiness, agricultural engineering, dairy science, environmental plant species, wine and viticulture, environmental farming consulting, and many other subjects that focus on the specific jobs that go on in sustainable agriculture, that have generally shown a high rate of success in preparing and helping students achieve jobs and careers after college (“Environmental Studies Major”). Evidence was shown when UC Santa Cruz’s Center of Agroecology & Sustainable Food Systems, surveyed UCSC agricultural alumni in 2009, to find out what students partook in after college in relation to their agriculture degree. The results could be considered encouraging to students on the fence about majoring in sustainable agriculture; statistics showed that graduates are, indeed, making an impact in creating a more sustainable food production system. It reported that 93% of the respondents had successfully achieved satisfying jobs that related directly to their college major; 76% were involved in food production, 40% in agriculture and environmental education, 29% in landscaping and gardening, 18% in retail, and another 18% work with NGO’s, non-governmental organizations. The survey also showed that 48% of alumni from the past 20 years had “initiated, created, or started the work or effort in which they were involved, which speaks to the leadership role that many have assumed since graduating” (Perez). The salaries in agriculture-related careers vary and can be considered sufficient; the U.S. Bureau of Labor Statistics researched the annual wages for different agriculture careers in 2008 and found that the median salary of “agricultural inspectors” was $41,170, the median for conservation scientists was $58,720, and foresters earned an average of $53,750 (*Bureau*). Many of the agricultural scientists are primarily involved in research institutes, the federal government, or private industries, and in these, salaries are often in the higher five to six digit annual earnings. The demand for sustainable agricultural scientists and producers is predicted to increase in the next ten years as the population grows, and the worlds becomes more educated on the importance of health to both humans and the Earth; the great demand will create better incentives, such as higher salaries, for people to get involved in the field (*Bureau*).

Sustainable agriculture is a thriving major in this modern day, and the education needed behind it is within a very close range, with exceptional programs offered at colleges all over the country. Schools like UC Santa Cruz, UC Davis, and Cal Poly all offer similar yet unique institutes that are designed to, not only educate students on the subject in the classroom, but also get them working in the real world of sustainable agriculture, whether it be on a local farm or on an on-campus garden; the opportunities available can be found all over the country in great quantity, and the programs available are of great quality.

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