Agriculture

The Sierra Club supports agricultural policies and practices designed to sustain and improve the fertility of the soil while protecting the Earth’s climate and the range of native diversity of plants and animals while providing abundant healthy food for all communities. The production of plants and animals for food, fiber, medicinals, and fuel is an essential human activity. It is also irreducibly cultural: every system of food production has the capacity to generate not only economic benefits and ecological capital, but also a sense of meaning and connection to natural resources. Agricultural use of land, water, energy and other resources merits high priority, as does the conservation of prime soils.

Common current practices such as large scale mono cropping and concentrated animal feeding systems consume disproportionate amounts of fossil fuels, pollute our water and air, deplete the soil, diminish biodiversity, and emit greenhouse gases. Such practices are neither economically, ecologically nor socially sustainable in the long term.

Therefore, we advocate an expeditious transition to farming methods that maximize both cultural and biological diversity, benefit local communities, improve rural livelihoods and preserve natural resources.

Goals: Agriculture must be carried out in an environmentally sound manner which:

1. Protects land, soil, and water resources and maintains their long-term productivity while promoting soil building and closing the nutrient cycle by reuse of plant and animal residues (unfortunately often labeled as wastes);
2. Conserves natural land and aquatic ecosystems, and integrates wildlife habitat with ecologically sound farming practices;
3. Protects and promotes genetic diversity, preserves traditional plant and animal diversity, and protects against contamination by transgenic (genetically engineered) organisms (Biotechnology Policy, Agriculture Policy);
4. Reduces energy and materials input per unit of production and minimizes greenhouse gas emissions;
5. Minimizes dependence on manufactured chemicals while encouraging practices that maximize soil renewal by building soil organic matter;
6. Minimizes the need for synthetic fertilizers and pesticides through the use of crop rotations, plant diversity and harnessing of ecological interactions;
7. Promotes the use of cover crops and perennial crops to protect soils from erosion and protect water resources from nutrient runoff and leaching;
8. Promotes innovative techniques, such as low-energy, labor-intensive technologies; solar energy for crop drying and powering farm machinery; crop residue and clean manure usage; minimum tillage; and land use policies that encourage urban residents to grow a portion of their own food;
9. Promotes fair wages and safe working conditions for agricultural workers (Farmworkers Policy);
10. Meets basic worldwide nutritional needs, understanding that lack of access to and maldistribution of healthy foods are the primary drivers of hunger, food insecurity, and diet-related health disorders;


12. Promotes long-term, stable associations of those who raise crops with the lands upon which their livelihood is based;

13. Protects pollinators and other native fauna including organisms in the soil biome (Biotechnology Policy, Agriculture Policy);

14. Protects indigenous agricultural practices that have evolved in place, along with diverse foods and medicinal plants associated with those cultures, where such practices have demonstrated their adaptability, suitability and durability over extended periods of time across land and climate types as measured by the ecological integrity and stability of such lands;

15. Removes government subsidies for practices that are inconsistent with these goals.

**Climate change and Agriculture:** Climate change threatens the stability of our global food systems, as farmers depend upon relatively stable climate systems to plan for production and harvest.

1. Industrial agricultural and food system practices are a significant contributor to climate change, and it is essential that they be reformed to minimize contributions to greenhouse gases and maximize carbon sequestration in plants and soils.

2. Livestock are the major source of greenhouse gases from agriculture, so minimizing the production and consumption of domestic animals that produce the most methane is one way to reduce greenhouse gas production. Ruminants such as cows, sheep and goats produce the most methane (an extremely potent greenhouse gas), and most GHG emissions from livestock come from cattle. The diet of livestock can and should be managed in ways that dramatically reduce their methane production. Livestock waste at Concentrated Animal Feeding Operations (CAFOs) should be managed to minimize greenhouse gas releases and to maximize soil carbon sequestration.

3. Soils are a highly effective means of carbon sequestration, but most agricultural soils have had their carbon sequestration dramatically reduced by soil loss, excessive tillage, overgrazing, erosion, and extensive use of fertilizers. The world’s cultivated and grazed soils have lost 50-70 percent of their original carbon stock, and in the process released billions of tons of carbon into the atmosphere. Soil carbon should be rebuilt by employing regenerative agricultural practices: low-till or no-till agriculture, cover-cropping, reducing or eliminating nitrous fertilizers (a major source of the very potent GHG nitrous oxide) eliminating overgrazing, minimizing soil erosion, and restoring soil carbon through compost and biochar are all important tools to promote soil carbon sequestration. An improved soil carbon sequestration regimen can play a significant role in reducing atmospheric greenhouse gas build up and help bring the planet back to a safer 350 ppm carbon regime.

4. Land conversion from natural states to intensive agricultural operations should be discouraged as it can change land from a carbon sink to a carbon source. Deforestation, plowing up of prairies, and filling of wetlands must all be avoided to reduce increasing carbon emissions and releasing carbon from existing carbon sinks.

5. Reduction in consumer food waste, through reduction in serving sizes and diversion, redistribution and composting will also reduce greenhouse gas emissions.
Land Use: The Sierra Club supports policies that protect productive agricultural land from urban, industrial, and mining development and prevent the conversion of wildland areas to agricultural use.

1. In general, land currently used for agricultural production in ways which protect long-term resource productivity should not be converted to other functions.

2. In areas not now in agricultural use, land-use classifications (including the identification of prime soils) and policies should be developed and implemented before conversion is permitted.

3. Those seeking to convert agricultural land to other uses, whether or not it is currently in active production, should bear the burden of proving that the proposed new use is more important to current and future public welfare and that no other location is feasible that would avoid loss of agricultural land; short-term economic gains to a few individuals are not sufficient grounds for reducing our stock of agricultural land.

4. Although the Sierra Club does not generally support the conversion of wildlands to agricultural use, each proposal must be evaluated on the basis of both the land’s importance for wildlife habitat and watershed protection and the characteristics of the proposed agricultural use.

5. It is important that there be wide public and professional participation in the planning process and that farmers, ranchers, and other agricultural professionals participate in land-use decisions.

6. Land-use planning should preserve cultural access rights and promote indigenous land-use and agricultural practices.

7. Zoning and land-division policy and practice should be structured to proactively protect prime agricultural lands from conversion to other uses.

8. Tax policies should protect agricultural lands and promote growing food in both urban and rural environments. Examples include adoption of differential assessment and tax deferral techniques, and structuring inheritance taxes to promote continuity of family farming.

9. When determining the “highest and best use” of land and water resources decisionmakers must consider long-term goals of preserving agricultural productivity and natural resources.

10. Soil erosion control should be focused on prevention of the problem at its source. Special attention should be given to restoration of formerly productive eroded or salinized lands.

11. In general, smaller, more diverse production units such as family owned and operated farms, to the degree that they result in increased environmental responsibility, can be less destructive and more productive than the extensive monoculture characteristic of larger units.

12. Where feasible, land use planning should take place on a watershed level.

13. Policies that support the compatibility of agriculture and other land uses such as residences, schools, hospitals, etc. should be enacted. Traditional agricultural practices that are protective of public health, air and water quality, and sustain the productivity of land should be protected from nuisance claims through appropriate local, state and federal policies. However, policies that hinder the reasonable application of environmental, health and nuisance protections against harm from intensive agricultural
operations such as industrial scale livestock operations, applications of pesticides and other chemicals, and impacts from transgenic organisms should be opposed.

14. Practices that preserve and enhance soil fertility, such as no-till cultivation, tillage practices that decrease wind and water erosion, and return of organic residues to the soil should be encouraged.

15. Small-scale agriculture in urban and suburban settings can result in the production of significant quantities of top-quality food while avoiding the necessity of long-distance transportation and increasing the resilience of dispersed communities. Both production for direct use in personal and community gardens, and high-value commercial agriculture aimed at restaurants and farmers markets can be viable in densely populated areas. Both should be encouraged, and the right of all people to grow their own food should be maintained.

16. Policies and agricultural subsidies should be designed to place long term priority on food production rather than biofuels.

17. Farming system designs should be modeled on natural ecological systems as much as possible.

18. Agricultural programs and policies should support both indigenous peoples, and the traditional agricultural practices that connect them to land and natural resources.

**Water:** Agricultural use of water is of critical concern both quantitatively and qualitatively.

1. A comprehensive water apportionment policy is necessary in all regions to ensure the equitable and sustainable distribution of finite supplies between the needs of ecosystem maintenance, municipalities, agriculture, recreation and industry.

2. Both surface and subsurface water should be protected under the Public Trust Doctrine everywhere. All groundwater use should be regulated as closely as surface water use, and ideally, food production systems should promote either ground water “steady state” or the long term net-positive recharge of overused or depleted aquifers.

3. In general, when present or potential supplies of agricultural water are diverted to short-term industrial activities such as mineral extraction, no reduction in quantity or quality of this water should result in either the short or the long term.

4. Use of water for any purpose should not result in damage to aquatic ecosystems, depletion or pollution of groundwater, or construction of storage and conveyance projects whose social, economic and environmental costs are disproportionate to their potential longterm benefits. Sierra Club opposes water-intensive agriculture that requires interbasin water transportation, massive construction of new water works, and groundwater mining. Localized, on-site, and small-scale rainwater harvesting and steady-state on-site natural spring systems should be designed, developed and used in preference to water from large water projects. Water projects should be accountable for their full social, economic and environmental costs, and these costs, in general, should be fully reflected in the price of water to the beneficiaries, including those using public irrigation water projects.

5. Agricultural systems should maximize the efficient use of available water and minimize water waste, especially via the prevention of evaporation and erosion-causing run-off. Crop and animal systems, such as “regenerative” grazing strategies and/or appropriate dry land farming techniques, whose needs for water do not typically exceed the available annual rainfall and renewable surface and groundwater resources of the area in which they are employed, should be given preference to those whose water needs are
unsustainable for that area. Water delivery systems should be designed to maximize targeted delivery to plants and animals and to minimize overall water use (e.g., drip irrigation is preferable to flood irrigation). All water users, including agriculture, should limit consumption and use so there are adequate minimum in-stream water flows to protect aquatic species and riparian ecosystems.

6. Agricultural water pollution can arise from poorly managed animal manures and from soil erosion as well as from application of toxic chemicals, and should be avoided through sustainably designed farming practices and regulations. Where unavoidable, agricultural pollution control must be preventative, incorporate state of the art technologies and practices, and preferentially eliminate contaminants at source rather than through elaborate downstream treatment facilities.

7. Sustainable agricultural production should be defined, in part, both by clean water inputs and clean water outputs, whatever the nature of the sources, uses and quantities of water involved. Water contaminated with pesticides or other toxic substances, particularly those that are persistent and/or systemic, should never be allowed to enter either surface or subsurface hydrological systems. Water used for irrigation, livestock watering, and on farm food processing should be tested to establish a baseline and retested at reasonable intervals for contaminants that threaten health or food safety. There should be a sound scientific basis for both the selected interval(s) and the identified contaminant(s).

Livestock Production and Grazing: the production of domesticated meat and animal products has a significant potential for environmental degradation because production can require large inputs of many types. Especially in Concentrated Animal Feeding Operations (CAFOs), pollution related to the production can be grossly disproportionate to the amount of food produced. Protection of air quality, water quality, soil productivity and health, wildlife habitat, energy conservation and food safety and quality must be the highest priority. Animal grazing systems that mimic the natural ecosystems which created healthy soils, sequestered large amounts of carbon and fostered biodiversity are the preferred livestock production systems.

1. Properly managed livestock grazing can be an appropriate activity on many public and private lands which are suitable for sustained-yield forage production, and often are unsuitable for row-crop production.

2. Pastures and rangelands should be stocked and managed to provide sustained-yield forage production, to increase soil organic carbon over time, and to support healthy and diverse wildlife populations.

3. Appropriately managed, grazing can have a significant positive role in building soil organic matter, increasing plant and wildlife biodiversity and weed management; intensive rotational grazing with animals moved frequently can increase productivity by 50 percent, and also reduce infestations of invasive plants.

4. Grazing fees on public lands should reflect the total social, economic and environmental costs of the use of this resource.

5. Grazing and pasturage, which recycle animal wastes back into the soil, have the potential to transform vast amounts of coarse forages into food products. This traditional system is more productive and less destructive than CAFOs, large-scale feed-grain production and feedlot operations which, while producing large quantities of food, also have solid waste management problems, cause air and water pollution, and consume excessive energy. Animals raised on perennial forage pastures cause far less soil erosion.
and nutrient loss compared with animals in confinement being fed crops from annual row cropping.

6. Control of predators should be aimed at individual problem animals.

7. CAFOs congregate large numbers of animals in relatively small and confined places, and substitute intensive management, an artificial diet, and heavy application of prophylactic antibiotics and artificial hormones for traditional land and labor practices. Negative impacts include the release of toxic bioactive substances into the environment and food chain, air and water pollution from animal wastes, degradation of moral values arising from the chronic inhumane treatment of animals, health hazards from noxious fumes, and the diversion of cropland from direct production of human food. CAFOs also accelerate climate change by their disproportionate production of greenhouse gases. The Sierra Club opposes the establishment of new CAFOs, and supports the phasing out of existing operations as expeditiously as possible.

8. The nontherapeutic use of antibiotics in livestock should be eliminated.

**Agricultural Chemicals:** Overdependence on and misuse of manufactured fertilizers and biocides has caused pollution of air and water, dramatically increased energy consumption in agricultural production, induced increased disease and pest resistance, increased human and animal morbidity and mortality, and is of great concern.

1. Pesticides and fertilizers should be used sparingly, and be based on verifiable soil test recommendations for the specific crops to be grown.

2. Crop rotations and plant diversity should be used to reduce the needs for fertilizers and pesticides.

3. Users of agricultural chemicals should be bear full legal and moral responsibility for chemical drift and runoff into adjacent farmland, wildland, and residential areas.

4. Crop residues, animal residues and other natural fertilizers should be used in preference to chemical fertilizers to the maximum extent possible.

5. Dependence on environmentally damaging pesticides should be phased out in favor of natural management practices and biological pest controls.

6. In growth and processing of food, application of chemicals to improve product appearance without significant qualitative contribution should be stopped.

7. Biocide applications that threaten the survival of populations of fish, birds, marine invertebrates and aquatic mammals by destroying their terrestrial and aquatic invertebrate food sources should be prohibited. The problem is particularly acute in the case of persistent systemic water soluble pesticides, which allow contaminated plants to affect entire food chains. The threat to pollinators is particularly acute.

8. When agricultural chemicals are used in combination, the safety of the combined substance as well as its individual components must be demonstrated as a condition of regulatory approval.

9. Properly implemented, Integrated Pest Management can limit pest damage both economically and with minimal hazard to people, property, and the environment, and should be encouraged.

**Genetic Diversity:** Diversity is essential to the resilience and survival of all ecosystems.
1. Agricultural practices which could destroy the genetic diversity of wild and cultivated species of plants and animals must be controlled and discouraged.

2. Diversity of crops, both temporally in rotations and spatially in multiple crop systems, should be encouraged so as to minimize large monocultures which are vulnerable to pests, diseases, soil erosion and nutrient loss.

3. Biodiversity should be recognized as an essential attribute of environmentally sound agriculture.

4. Preserving genetic diversity within species of cultivated plants and domestic animals is critical to maintaining resilience in human food systems. Seed-saving, seed banks, and the preservation and cultivation of indigenous and heirloom species and breeds should be encouraged.

**Transgenic (genetically engineered) Organisms.** Based on the precautionary principle, we call for a ban on the planting of all transgenic crops (whether or not currently approved by the FDA), for regulation of transgenic releases, for transparency, for labeling, and for imposition of liability on manufacturers of transgenic seeds in cases of environmental damage or contamination. We oppose patenting of life forms and oppose trade policies that interfere with implementation of the precautionary principle. ([Biotechnology Policy](#))

Genetically engineered crops have failed to provide promised increased productivity, resistance to drought and disease, and reduction in pesticide use. They have not increased genetic yield potential, and the singular focus of transgenic research has led to the neglect of other more conventional plant breeding strategies. To the contrary, the most widely planted GE crops have led to increased pesticide use and consequent harm to both human health and the environment. By contaminating non-GE crops or threatening to do so GE agriculture has placed special burdens on organic agriculture. Over reliance on GE glyphosate-resistant varieties has led to the development of glyphosate-resistant weeds and the necessity to switch to more hazardous chemicals for weed control in both agricultural and wild lands. A similar chain of events has diminished the value of the biocontrol organism Bacillus thuringiensis ("Bt") to both organic and conventional agriculture. Neither state nor federal governments have been able or willing to require adequate environmental and human safety testing of existing or proposed GE crops, or to protect the environment and public from resulting harms.

**Farming of fish and other aquatic organisms**

1. Cultivation of aquatic organisms in a manner that has a high potential to impact natural ecosystems, such as net-pen fish farming in coastal waters, should be discouraged.

2. Aquaculture systems should include components that recycle wastes internal to the system.

3. Multi-trophic aquaculture systems that integrate fish and plant ecosystems to process waste and optimize use of resources should be encouraged. ([Sustainable Marine Fisheries Policy](#))

**Bioenergy**

Biomass energy (or “bioenergy”) is the use of organic materials to be burned for heat and/or electric power, or converted to liquid fuels (often called “biofuels”). Many claims for the “sustainable” and “carbon neutral” nature of bioenergy are untrue.
Inappropriately located, poorly regulated, industrial scale, or commodity-based biofuel facilities can easily create environmental problems greater than those they solve. Air pollution, water pollution, land degradation, health impacts and the increased direct and indirect emissions of greenhouse gases are all serious risks. Despite these serious downsides, biofuels from sustainable feedstocks using appropriate production technologies and facilities can be an important ingredient in a clean energy future.

The Club opposes further deployment of corn-based ethanol based on its extremely dubious net carbon benefits and its unresolved direct and indirect environmental impacts. The Club also opposes proposals to use agricultural waste and residue products (e.g., corn stover) without rigorous evidence that the material being used is surplus to the needs of soil health and fertility.

For details on our bioenergy policy please refer to the Energy Resources Policy and the Biomass Guidance.

**Food Policy:**
Agriculture’s fundamental objectives should include optimizing output of critical nutritional needs and protection of the environment, rather than being limited to maximizing quantities produced per acre. Particularly in developed countries, there should be a reduction in excessive food consumption and waste patterns to allow maintenance of diet quality at lower environmental cost. An important first step would be to develop a greater reliance on vegetable protein. Within environmental constraints, we must develop standby food reserves. However, efforts to drastically expand North American food production, at potentially great environmental cost, must be viewed with caution.

1. Policies should prioritize local food self-sufficiency and sovereignty above concentrated food production and long-distance transport of food. Such policies include those that encourage institutional procurement from local food producers, zoning codes that allow for urban, home, and community-based food production, and appropriate-scale regulation of farm/food safety.

2. In recognition of the excessive pressure that expanding populations place on prime and marginal agricultural lands, stabilization of population in all regions of the world should be a central focus in conserving the resources which sustain these populations (Population Policy).

3. Greater reliance on locally-produced, seasonal foods should be encouraged so as to minimize transportation of agricultural products. Research into fruit, vegetable, grain and fish varieties which will grow in various climates should be encouraged. Attention to culture should be encouraged.

4. The Sierra Club favors trade policies that promote the ability of developing countries to meet their own nutritional needs and protect their farmers and farm economies from the adverse consequences of our "dumping" below cost, subsidized food on those countries.

5. We support policies that discourage the sale or consumption of highly processed so-called "convenience foods," as these are nutritionally inferior and wasteful of both energy and packaging materials.

6. Policies that increase access to fresh fruits and vegetables in low-income communities such as Electronic Benefits Transfer (EBT) stations in farmers markets, healthy corner stores, and state subsidized programs to encourage farmers markets should compliment policies to increase local food production.
7. Because of the need to maintain the future of agriculture by attracting younger people into farming, policies should support and expand educational programs that focus on both nutrition and agriculture.

8. Food safety regulations should not undermine ecologically sound farming practices. Regulations developed to curb the environmental impact of industrial farming operations should not be applied to small scale and diversified farming operations. Rather, appropriate programs and certifications should be developed for these producers so that they are not unnecessarily burdened.

9. Support limits on size of soft drink containers, introduce effective beverage container recycling deposits, and discourage sugar-intensive beverages that have limited to no nutritional value; prohibit advertising that is targeted toward children.

10. Remove soft drinks, bottled water, and snack foods from vending machines in schools and other public buildings; put emphasis on improving quality of public water supplies.

Avoiding Waste of Food
Americans discard the equivalent of $165 billion worth of food each year, much of which ends up rotting in landfills as the single largest component of U.S. municipal solid waste and a substantial portion of U.S. methane emissions. Reducing food losses by just 15 percent would provide enough food to feed more than 25 million Americans every year at a time when one in six Americans suffer from food insecurity. The Sierra Club supports policies that:

1. Promote food “redistribution” from hospitals, schools, hotels and restaurants to food banks, soup kitchens, and homeless shelters, with food waste composting as a second-best option;

2. Encourage the utilization of Grade B and Grade C produce for value added;

3. Foster consumer expectations that reduce food waste at home;

4. Implement municipal, curb-side composting;

5. Discourage retailers from discarding food on the basis of cosmetic characteristics;

6. Encourage food gleaning to allow recovery of food lost to wasteful harvest practices;

7. Allow food banks, small grocery stores, cottage food producers, restaurants, and the general public to accept donations or make purchases directly from gleaners and small or urban farmers;

8. Prioritize composting of post-consumer and spoiled food waste over use of such food stocks for generation of energy.

Research and Education: a basic redirection of agricultural research and education is needed at all levels, including the agricultural extension system.

1. The teaching of agriculture, and other associated educational activities, should be based on ecological principles and emphasize restoration and maintenance of land productivity through focus on agroecology, while minimizing dependence on energy-intensive practices and maximizing soil carbon storage.

2. Research should be promoted which develops productive agricultural practices based on (a) low-energy alternatives, (b) water conservation practices that would reduce irrigation requirements, and which would (c) maintain long-term sustained yield for soil and water; future systems should be dependent on contemporary water and nutrient resources ... rainfall, snowfall, and fixed nitrogen from the atmosphere.
3. Research should be systems-oriented to meet environmental, economic and social goals, rather than focusing solely on production or economics.

4. Sustainable agricultural education should include ecological, social and economic metrics, be interdisciplinary, and recognize the centrality of soil to the continuation of human life.

5. Beginning farmers should be encouraged, not only by making relevant business as well as agricultural training easily accessible but also by promoting policies that reduce barriers such as difficulty of access to land.

6. Agricultural curricula should be science-based, and not influenced by the financial aspirations of corporations which benefit from promoting the use of chemicals, transgenic organisms, intensive livestock operations, and similar environmental and public health threatening practices.