

The general thesis of this disadvantage is that without increases in Carbon Dioxide (CO₂) from Global warming the world is going to face a huge food shortage. This is a good generic disadvantage because almost all of the (topical) affirmative plans will decrease global warming by switching away from fossil fuels. This is an especially effective disadvantage when the Affirmative team claims a decrease in global warming advantage.

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1 NC Disadvantage Shell: Worldwide Starvation

A. Uniqueness:

1. Food supply stays ahead of population growth

Thomas **Pearson**, research analyst at CEI, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 340

The world's continuing growth in population has sparked some concern that food production might not increase fast enough to feed everyone. But if trends continue as they have over the past 30 years, people will be better nourished in the future despite population gains. There is a fairly consistent upward trend in world per capita food production from 1961 to 1998, despite the fact that the world's population has more than doubled since 1950. Over this period, the amount of food produced per person increased about 23 percent, mostly due to advances in farming technology. The same kind of research that has brought about life-extending discoveries in vaccines, sanitation, and nutrition has also fostered advances in genetic engineering, irrigation, and pesticides that have kept food productivity well ahead of global increases in population. It is important to note that population growth is closely related to food abundance. More abundant food has helped reduce starvation and malnutrition and thus cut global death rates. The result has been higher population growth rates. On the other hand, rising food production often correlates with lower fertility rates. In other words, greater food security leads to fewer children per woman. Economic growth and technological progress have kept the food supply several steps ahead of the growing population.

2. Food demand will increase

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 38

THE UNITED NATION'S medium projection is for world population to reach about 7.9 billion by 2025, before hopefully stabilizing at about 9 to 10 billion toward the end of the 21st century. At least in the foreseeable future, plants—and especially the cereals—will continue to supply much of our increased food demand, both for direct human consumption and as livestock feed to satisfy the rapidly growing demand for meat in the newly industrializing countries. It is likely that an additional 1 billion metric tons of grain will be needed annually by 2025. Most of this increase must be supplied from lands already in production, through yield improvements. Using these estimates, I have come up with projections on future cereal demand and the requisite yields needed by the year 2025 (Table 2.4). Population growth, urbanization, and rising incomes are fueling a massive increase in the demand for animal products.⁵ By 2020, people in developing countries are likely to consume 100 million metric tons more meat and 223 million metric tons more milk than they did in 1993 (Table 2.5). The demand for poultry will increase the most. By 2020, China will become the world's largest meat producer, and India has already become the world's largest milk producer.

B. LINK

1. Their plan decreases global warming and thus causes a decrease in CO2 levels – [Read their Case Evidence]

C. Internal LINK

1. Increased levels of atmospheric CO₂ are the only safe way to solve the upcoming global food shortage

Dr. Keith **Idso**, Climatologist at Arizona State University, **and** Dr. Sherwood B. **Idso**, President, the Center for the Study of Carbon Dioxide and Global Change, July 4, **2001**, “Carbon Dioxide and Global Environmental Change: The Proper Roles of Reason and Religion in Developing Policies Related to Anthropogenic CO₂ Emissions”, http://www.co2science.org/edit/v4_edit/v4n27edit.htm (8-07-03)

So what extra measures could humanity take to meet this "greatest global challenge?" This is the question Idso and Idso (2000) address, concluding that if the air's CO₂ concentration is allowed to rise unimpeded by overt actions designed to curtail anthropogenic CO₂ emissions, the extra plant productivity provided by the aerial fertilization effect of atmospheric CO₂ enrichment will be just barely sufficient to make up for the shortfall in agricultural production that would still remain fifty years from now in spite of everything else man could possibly do to increase the global supply of food.

D. Impact

1. Hunger causes suffering, creates national vulnerability to other disasters and causes intergenerational poverty

Jacques **Diouf**, Director-General of FAO, September-November 2001, UN-Chronicle,

http://www.findarticles.com/cf_dls/m1309/3_38/86062264/p1/article.jhtml

The plight of the hungry all too often evokes a response only when vast populations are brought to the brink of famine and mass starvation--mere bundles of skin and bone fleeing their homes in a desperate quest for survival. Most hunger, however, is far less visible and does not make the headlines or horrify television audiences. Yet widespread chronic hunger--the hunger that comes with one meal--rather than two or three each day--causes immense human suffering and undermines the well-being of nations and makes them vulnerable to disaster. Hunger predisposes people to illness and premature death; it robs youth and adults of their potential to work; and it cripples children's growth and learning abilities. Hunger is as much a cause as an effect of poverty, and it traps families in a vicious cycle that passes from one generation to another.

2. Global food shortages lead to World War III

William **Calvin**, theoretical neurophysiologist at the University of Washington, Atlantic Monthly, January, The Great Climate Flip-Flop, Vol 281, No. 1, 1998, p. 47-64

The population-crash scenario is surely the most appalling. Plummeting crop yields would cause some powerful countries to try to take over their neighbors or distant lands -- if only because their armies, unpaid and lacking food, would go marauding, both at home and across the borders. The better-organized countries would attempt to use their armies, before they fell apart entirely, to take over countries with significant remaining resources, driving out or starving their inhabitants if not using modern weapons to accomplish the same end: eliminating competitors for the remaining food. This would be a worldwide problem -- and could lead to a Third World War -- but Europe's vulnerability is particularly easy to analyze. The last abrupt cooling, the Younger Dryas, drastically altered Europe's climate as far east as Ukraine. Present-day Europe has more than 650 million people. It has excellent soils, and largely grows its own food. It could no longer do so if it lost the extra warming from the North Atlantic.

*** Answers

* A2 Uniqueness

US produces most of the world's goods although it is a big CO2 emitter

John **Christy**, professor of Atmospheric Science at the University of Alabama in Huntsville, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 25

A common criticism of the United States is that our country produces about 25 percent of the world's CO2 therefore we are the biggest part of the "problem." Without much effort, one may see straight through this claim. Yes, the United States is a large emitter of CO2. However, with that CO2, the United States produces 31 percent of what the world wants, and the type of things the world desperately needs that no one else provides. Consider food production, medical advances, technology in all areas, and even global defense-of-freedom capabilities. Do these fundamental CO2-based "products," which benefit the world, not deserve recognition and even applause?

One billion people including 100,000 children are malnourished across the globe

Richard **Schwartz**, Ph.D. Professor Emeritus, Mathematics College of Staten Island Judaism and Vegetarianism, Judaism and Global Survival, and Mathematics and Global Survival <http://schwartz.enviroweb.org/hunger.html> No date given, accessed 8/9/2003

World hunger statistics are staggering: Over 1 billion people, nearly a fifth of the world's population, are chronically undernourished. Between 700 and 800 million people lack sufficient income to obtain the basic necessities of life. It has been estimated that twenty million people die annually due to hunger and its effects, including diseases brought on by lowered resistance due to malnutrition. Children are particularly victimized by malnutrition. Three out of four who die due to hunger are children. In poor countries, over 40 percent of all deaths occur among children under five years old. Almost 6 percent of the world's children die before their first birthday. At least 100,000 children annually go blind due to vitamin A deficiency in their diet. Malnourishment also brings listlessness and reduced capacity for learning and activities, which perpetuates the legacy of poverty.

A contributing factor to world hunger is population growth

Richard **Schwartz**, Ph.D. Professor Emeritus, Mathematics College of Staten Island Judaism and Vegetarianism, Judaism and Global Survival, and Mathematics and Global Survival <http://schwartz.enviroweb.org/hunger.html> **No date** given, accessed 8/9/2003.

Lester R. Brown and the Worldwatch Institute believe that prospects for feeding the world's people are worsening for the following reasons: The world's population is currently increasing by over 80 million people per year. At this rate the world's population increases by an amount equal to the population of the United States almost every three years. While most of the children are born in less developed countries, this rapid growth in population has major impacts on land, water, pollution, and other factors related to the food supply. Another indication of the potential severity of the problem is that, while it took all of the world's history to reach the 1997 population of about 5.84 billion people, this number is projected to double in less

than 50 years, with all the implications for increased consumption of food and other resources that this implies.

1/3 of the land on earth can't be used. Increased CO2 massively expands usable land

Office of Arid Land Studies, "Developing New Crops for Arid Lands," September 17, **2001**, <http://ag.arizona.edu/OALS/oals/npc/newcrops.html>, accessed 11/27/01

Roughly one-third of the world's land mass is chaparral, scrub, or dry desert where conventional crops cannot be produced without irrigation. However, the world's burgeoning demands for food and fiber have placed increasing pressure on these marginal regions where attempts to cultivate crops are being initiated now more than ever before. Generally, the consequences have ranged from disappointing to disastrous. When prolonged irrigation and other intensive agricultural practices become established in arid and semi-arid lands, soil salinity buildup and severe erosion inevitably follow. These problems are now major factors contributing to a worldwide epidemic of desertification and cropland loss. Approximately one-third of the world's 160 million hectares of irrigated lands are already affected by salinity problems, and cost-intensive methods are required to prevent more widespread damage. A further problem with irrigation is that it often relies on non-renewable underground water reserves. As the aquifer is depleted, the pumping costs and energy requirements increase—thus compounding the already high price of irrigation. Farm profits are routinely swallowed by these costs in the southwestern U.S., where thousands of acres of abandoned croplands stand as evidence of a single fact: conventional agriculture in arid lands is ultimately a self-limiting endeavor. The most practical solution for the long term is likely to involve a change in current agricultural strategies, ultimately leading to the cultivation of crops that are better adapted to the desert. Diversified cropping schemes requiring little or no irrigation would bring with them corresponding reductions in the problems of erosion and soil salinization; such crops also would have greatly reduced growing costs. And a crop uniquely adapted to an arid habitat could be grown on land where agriculture is not impractical or impossible, thus conferring an additional cost advantage by avoiding competition with more traditional crops.

Agricultural land is decreasing

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 31

It must also be acknowledged that in many of the more productive areas—especially the irrigated areas located in warm climates there are problems of soil erosion and declining water quality, which if left unchecked can lead to the permanent loss of prime agricultural land. In most cases, we shall see, the root cause of this environmental degradation has been mistaken economic policy—such as mistaken pricing policies and poor engineering design—not modern, science-based technology.

Undeveloped agricultural land only exists in Africa and South America

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 42

Most of the opportunities for opening new agricultural land to cultivation have already been exploited (Table 2.6). This is certainly true for densely populated Asia and Europe. Only in sub-Saharan ~Africa and South America do large unexploited tracts exist, and only some of this land should eventually come into agricultural production. But in populous Asia, home to half of the world's people, there is very little uncultivated land left to bring under the plow. Apparently, in West Asia there are already some 21 million hectares being cultivated that shouldn't be. Most likely, such lands are either too arid or, because of topography, are so vulnerable to erosion that they should be removed from cultivation.

Agricultural production increasing at an annual rate of 5%

Thomas **Pearson**, research analyst at CEI, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 336

Agricultural production has consistently outpaced population growth over the past 30 years. The pattern of per capita agricultural production has also been fairly consistent: a period of impressive growth, followed by a brief period of stagnation or decline, followed by more growth. Although there has been a recent measurable slowdown of per capita agricultural output due to economic factors, it appears to be on the upswing again. Causes of the brief slowdown included tremendous surpluses in world food supplies that prompted North America and Europe to restrain their production. Moreover, the chaos that followed the demise of communism in Eastern Europe and the former Soviet Union dramatically reduced the region's contribution to global agricultural production. Meanwhile, the developing world has managed to increase agricultural productivity (recently) at an annual rate of 5 percent.

Growth in world food production will not slow.

Thomas **Pearson**, research analyst at CEI, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 342

There was a steady, nearly uninterrupted growth in total world food production from 1961 to 1998. The growth in production continued despite ever lower world food prices over the same period. The majority of this increase in production is due to the implementation of better agricultural technology resulting from new research. This research, much of it conducted by the Consultative Group on International Agricultural Research, has fostered major advances in pesticides, genetic engineering, fertilization, prevention of soil erosion, crop rotation, irrigation techniques, and livestock production techniques. In general, the rate of improvement seems to be increasing. After yields exceed 2,000 kilograms per hectare per year, it requires less time to achieve each next 1,000 kilograms per hectare per year in productivity. The reason for this is that the shift from subsistence agriculture to technological agriculture is an initially expensive procedure. After the shift is made, it is much easier to incorporate new scientific findings into farming practice. Most countries in the developing world have recently gone through this shift toward technology or will in the near future. The potential for increased implementation of the latest agricultural knowledge suggests that the growth in world food production will not slow in the near term.

Agricultural yields will increase in the next 35yrs

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 39-40

While somewhat of an oversimplifying assumption, since there are still some vast areas to bring into production in South America and Africa, much of the projected increases in food supply will have to come from land currently in production. To meet the projected food demands, therefore, the average yield of all cereals must be increased by 65 percent between 1990 and 2025. Fortunately, there are many improved agricultural technologies—already available or well advanced in the research pipeline—that can be employed in future years to raise crop yields, especially in the low-income food deficit countries where most of the hunger and poverty exist. Yield gains in China and industrialized North America and western Europe will be much harder to achieve, since they are already at very high levels. Still, I am hopeful that scientific breakthroughs, particularly from genetic engineering, will permit another 50 percent increase in yields over the next 35 years. Even without using advances in plant biotechnology, yields can still be increased by 50 to 70 percent in much of the Indian subcontinent, Latin America, the former Soviet Union, and eastern Europe, and by 100 to 150 percent in much of sub-Saharan Africa, providing political stability is maintained, bu-reaucracies that destroy entrepreneurial initiative are reined in, and their researchers and extension workers devote more energy to putting science and technology to work at the farm level.

Food supply stays ahead of pop growth

Thomas **Pearson**, research analyst at CEI, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 340

The world's continuing growth in population has sparked some concern that food production might not increase fast enough to feed everyone. But if trends continue as they have over the past 30 years, people will be better nourished in the future despite population gains. There is a fairly consistent upward trend in world per capita food production from 1961 to 1998, despite the fact that the world's population has more than doubled since 1950. Over this period, the amount of food produced per person increased about 23 percent, mostly due to advances in farming technology. The same kind of research that has brought about life-extending discoveries in vaccines, sanitation, and nutrition has also fostered advances in genetic engineering, irrigation, and pesticides that have kept food productivity well ahead of global increases in population. It is important to note that population growth is closely related to food abundance. More abundant food has helped reduce starvation and malnutrition and thus cut global death rates. The result has been higher population growth rates. On the other hand, rising food production often correlates with lower fertility rates. In other words, greater food security leads to fewer children per woman. Economic growth and technological progress have kept the food supply several steps ahead of the growing population.

* **A2: CO2 hurts crops**

More CO2 emissions means more crops

S. Fred **Singer**, Professor Emeritus of Environmental Sciences (University of Virginia), Arlington, VA 22202, US, Financial Times (London, England), December 31, **2003**

As history teaches us, the risks come from a cooling not a warming climate. Robert Mendelsohn, the Yale resource economist, and nearly two dozen co-authors have documented the benefits of warming. Agriculturalists concur that higher levels of carbon dioxide (from the burning of coal, oil and gas) will make crops and forests grow faster (as they did when CO levels were some 10 times higher in the geologic past). Even the UN's own science panel admits that a warming climate does not signal more severe storms, hurricanes, floods and droughts, although more evaporation from the oceans means more rain (and therefore more fresh water).

Increased atmospheric carbon dioxide is key to crop levels meeting population levels

Daily News of Los Angeles, March 30, 1998

The future of a green Earth depends upon the release of carbon dioxide and water. The failure to do so leads to a barren planet. Agriculture productivity and tree growth rate have increased by over 50 percent in the past half-century due to the increased carbon dioxide level the industrialized nations have provided by increased burning of hydrocarbons that have been locked up for eons as oil, gas and coal. This increase in availability allows the sunlight photosynthesis to provide the oxygen to breathe, the food to nourish, and the lumber to house Earth's growing population. This biomass growth rate will have to double or triple over the next few centuries in order to keep up with the population growth. This can be accomplished only if the rate of carbon dioxide release is increased.

Global warming would boost agriculture

Thomas Gale **Moore**, Senior Fellow Hoover Institution Stanford University, Sept. **2000**, It is the best of Climates; It will be the worst of Climates?, <http://www.stanford.edu/~moore/CIEffects.pdf>, 8/6/03

In many parts of the world, warmer weather should mean longer growing seasons. Should the world warm, the hotter climate would enhance evaporation from the seas and lead probably to more precipitation worldwide. Moreover, the enrichment of the atmosphere with CO2 would fertilize plants and make for more vigorous growth. Agricultural economists studying the relationship of higher temperatures and additional CO2 to crop yields in Canada, Australia, Japan, northern Russia, Finland, and Iceland found not only that a warmer climate would push up yields but also that the added boost from enriched CO2 fertilization would enhance output by 15 percent (NCPO 1989). The United States Department of Agriculture in a cautious report reviewed the likely influence of global warming and concluded that the overall effect on world food production would be slightly positive and that agricultural prices would be likely to decrease. (Kane 1991).

* A2: CO2 helps weeds

CO2 helps crops significantly more than weeds

Sylvan Wittwer, Professor of Horticulture and Director of the Michigan State University Agricultural Experiment Station, Food, Climate, And Carbon Dioxide: The Global Environment And World Food Production, 1995, p. 84-85

Weeds compete directly with crops for the limited resources of water, sunlight, mineral nutrients, and atmospheric CO₂ on which both depend for plant growth. This competition is costly. Of all crop pests, weeds are the most damaging. Annual losses in crop yields and quality for the United States' farmer from weeds alone are estimated at 10% of total production, or approximating \$18 billion (Patterson and Flint, 1990; Waggoner, 1983). Percentages and total losses, for many developing countries, are even higher when the direct losses, and that which is used, including human labor, for weed control are considered. There are also serious environmental consequences arising from continued use of chemical herbicides, the most widely used pesticides, which will not be alleviated by the development of herbicide-resistant crops. It would be good fortune, if weeds were to do more poorly than crops in the approaching high CO₂ world. With agricultural-producing systems, one might expect that C3 crops would generally fare better than C4 crops, when the atmospheric CO₂ content is increased (Patterson and Flint, 1980; Patterson et al., 1984; Patterson, 1986). C4 weeds in the presence of C3 crops are the most common. Of the 20 food crops most important for feeding the world's population 16 have a C3 photosynthetic pathway (Wittwer, 1981a). The only exceptions are corn, sorghum, millet, and sugarcane, which have C4 photosynthetic pathways. Conversely, for few C4 plants many of the major weeds are C3 plants (Wittwer, 1985). As indicated earlier, 19 of the 38 major weeds of corn, the most important crop in the United States, are C3 plants (USDA, 1972). It is now well known that C3 and C4 plants respond differently to atmospheric CO₂ enrichment. These widely reported differential responses should be particularly relevant to weed/crop competition for agriculture in a future high CO₂ world. Early controlled environment experiments with plants grown in pots demonstrated that C3 species would produce more biomass than C4 species when grown individually under enhanced CO₂. In competition with plants of the two photosynthetic pathways at high CO₂. the C3 plant performance was even greater (Patterson and Flint, 1990). Meanwhile, many additional experiments with C3 and C4 plants dealing with crop/weed relationships have been conducted. There are instances where the effects of CO₂ enrichment, other than the direct enhancement of photosynthesis, may favor C4 rather than C3 species (Bazzaz et al., 1989). It has also been observed that the competitive ability of C3 species improved in assemblages of C3 and C4 plants in enriched CO₂ atmospheres, compared with ambient levels. Total community production also increased. An overall survey of current reports, when multiple species competition is considered, provides evidence that CO₂ enrichment is likely to increase the relative competitive ability of C3 plants with respect to C4 plants (Patterson and Flint, 1990).

CO₂ benefits C₃ crops while providing few benefits to C₄ weeds, massively increasing yields

Sylvan **Wittwer**, Professor of Horticulture and Director of the Michigan State University Agricultural Experiment Station, Food, Climate, And Carbon Dioxide: The Global Environment And World Food Production, **1995**, p. 64

Plants are divided into three broad categories depending on differences in their photosynthetic pathways for the fixation of CO₂. They are labeled, academically, as C₃, C₄, and CAM (crassulaceous acid metabolism) plants.

Most green plants, fruit, nut, ornamental, shade, and forest trees and shrubs, algae, most cereal grains (rice wheat, oats, rye, barley), all legumes, roots, and tubers, and vegetable and fruit crops, comprising about 95% of the earth's plants, use the C₃ pathway. It is so named because the first products of photosynthesis have three carbon atoms per molecule. C₃ species have both qualitatively and quantitatively greater photosynthetic responses to elevated CO₂ levels than C₄ or CAM species. C₃ plants have the inherent ability for more photosynthesis if the atmospheric level of CO₂ is increased. This is because of the excess capacity for CO₂ reduction, which now is partially wasted in photorespiration (Acock and Allen, 1985; Allen, 1979; Bravdo, 1986; Gifford, 1974; Gifford et al., 1985; Percy and Bjorkman, 1983; Tolbert and Zelich, 1983). A central feature of C₄ plants is their ability to raise internal leaf CO₂ concentrations above the CO₂ levels of the atmosphere or surrounding air. Thus, they can partially overcome the photosynthetically CO₂ limiting level of today's air. Two groups of plants can do this, the C₄ (corn, sugarcane, sorghum, millet, some grasses) and the CAM (pineapple, agave, cacti). There are several consequences of agricultural significance. C₄ plants photosynthetically, and more completely, remove CO₂ from the air than C₃ plants. C₄ plants can more effectively avoid the stresses of high temperature and lack of water. C₄ plants have a competitive advantage when restricted CO₂ availability limits net photosynthesis, especially in hot semiarid conditions. C₄ plants have a lower compensation point than C₃ plants. The mechanism for concentrating CO₂ in the mesophyll and bundle sheath cells of the leaf allows C₄ plants to take advantage of the high light intensities of full sunlight at midday and the high temperatures of the tropics. It also means that atmospheric enhancement with higher levels of CO₂ may not benefit C₄ plants as much if light is limiting. However, with water stress or high temperatures, more CO₂ will be beneficial to C₄ species. The much higher affinity for CO₂ in C₄ plants permits them to maintain a more favorable ratio between net CO₂ uptake and stomatal conductance. To determine the comparative capacity of photosynthesis and crop productivity under different light, moisture regimes, soil nutrient levels, and, especially, temperatures in open fields with a higher atmospheric CO₂ remains the ultimate challenge (Tolbert and Zelitch, 1983). Finally, it should be emphasized that the only major food crops of any significance having C₄ photosynthetic metabolism, whether they be cereal, legume, sugar, roots, tubers, or vegetables, are corn, grain sorghum, pearl millet, and sugarcane. The only food crop of any significance having CAM photosynthetic metabolism is the pineapple. As far as food and agricultural crops are concerned with variables thus far imposed, most growth responses to elevated levels of atmospheric CO₂ are favorable. They include increases in total dry weight, root growth, higher root/top ratios, leaf area, weight per unit area, leaf thickness, stem height, branching

and seed, and fruit number and weight. Organ size may increase along with root/top ratios. The C/N ratio may also increase. Important for agriculture is that there is an increase in harvest index and the marketable product, and a shortening of the growing season with earlier maturity resulting in reductions in both water and pesticide requirement (Table 4.1). Most of the experimental results thus far for an enhancement of photosynthetic efficiency have been related to a reduction, or near elimination, of photorespiration in C3 plants. This, coupled with the enhancement of water use efficiency, has led to an approximate prediction of a 33% increase in the mean yield, with a 95% confidence level of 27 to 38% of most of the world's important C3 and C4 plants, resulting from an approximate doubling of the current atmospheric CO2 concentration.

* Impact Extensions

Mass starvation coming as a result of agriculture shortage

Dale Allen Pfeiffer, 2004,

http://www.fromthewilderness.com/free/ww3/100303_eating_oil.html
http://www.fromthewilderness.com/free/ww3/100303_eating_oil.html

None of this research considers the impact of declining fossil fuel production. The authors of all of these studies believe that the mentioned agricultural crisis will only begin to impact us after 2020, and will not become critical until 2050. The current peaking of global oil production (and subsequent decline of production), along with the peak of North American natural gas production will very likely precipitate this agricultural crisis much sooner than expected. Quite possibly, a U.S. population reduction of one-third will not be effective for sustainability; the necessary reduction might be in excess of one-half. And, for sustainability, global population will have to be reduced from the current 6.32 billion people⁴² to 2 billion—a reduction of 68% or over two-thirds. The end of this decade could see spiraling food prices without relief. And the coming decade could see massive starvation on a global level such as never experienced before by the human race.

Sub-Saharan Africa is at the most risk for food insecurity

Norman **Borlaug**, professor of International Agriculture at Texas A&M, 2002, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 40

The most frightening prospect for food insecurity is found in sub-Saharan Africa, where the number of chronically undernourished could rise to several hundred million people if current trends of declining per capita production are not reversed. Sub-Saharan Africa's increasing population pressures and extreme poverty, the presence of many human diseases (e.g., malaria, tuberculosis, river blindness, trypanosomiasis, guinea worm, AIDS, etc.), poor soils and uncertain rainfall, changing ownership patterns for land and cattle, inadequacies of education and public health systems, poorly developed physical infrastructure, and weaknesses in research and technology delivery systems will all make the task of agricultural development very difficult.

*****Other things**

Warming increases Russian agriculture and timber

Paul **Roberts**, energy expert and writer for Harpers, **2004**, *The End of Oil*, pg. 116

Not everyone is appalled at the situation. Whereas global warming is already bringing drought, crop failures, famine, flooding, and other calamities to parts of Africa, Asia, and southern Europe, higher temperatures may actually mean a net gain for northern countries like Russia. In Siberia and elsewhere, milder winters and longer growing seasons may act like a growth hormone on certain farm and timber yields; potato crops, for example, are expected to jump by one-third. Russian shipping companies are already dreaming of an ice-free northern sea route along the Siberian coast that would allow oil tankers and other vessels to sail from Europe to Japan two weeks faster than they can via the Suez Canal.

yield increasing tech is key to poverty decrease in developing world

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 54

The transgenic crops released so far generally reduce production costs per unit of output and thus, in theory, are especially appropriate the developing world, where more than half the population is still engaged in agriculture and where cost-reducing, yield-increasing technologies are the key to poverty reduction. In South Africa, for example, smallholders in the Makhathini Flats area who have adopted Bt cotton have increased their yields by an average of 26 percent, reduced insecticide applications from seven sprays to one, and increased their income by \$165 per hectare.⁴ Since the biotechnology is packed into the seed, transgenic crops can help to simplify input delivery, often a major bottleneck in reaching smallholder farmers.

Technology is being withheld from the developing nations

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 59

I now say that the world has the technology—either available or well advanced in the research pipeline—to feed a population of 10 billion people. The more pertinent question today is whether farmers and ranchers will be permitted to use this new technology. Extremists in the environmental movement from the rich nations seem to be doing everything they can to stop scientific progress in its tracks. Small, but vociferous and highly effective and well-funded, antiscience and technology groups are slowing the application of new technology, whether it be developed from biotechnology or more conventional methods of agricultural science. I am particularly alarmed by those who seek to deny small-scale farmers in the developing countries—and especially those in sub-Saharan Africa—access to the improved seeds, fertilizers, and crop protection chemicals that have allowed the affluent nations the luxury of plentiful and inexpensive foodstuffs, which, in turn, has accelerated their economic development.

The task of agricultural development will be extremely difficult*

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 40

The most frightening prospect for food insecurity is found in sub-Saharan Africa, where the number of chronically undernourished could rise to several hundred million people if current trends of declining per capita production are not reversed. Sub-Saharan Africa's increasing population pressures and extreme poverty, the presence of many human diseases (e.g., malaria, tuberculosis, river blindness, trypanosomiasis, guinea worm, AIDS, etc.), poor soils and uncertain rainfall, changing ownership patterns for land and cattle, inadequacies of education and public health systems, poorly developed physical infrastructure, and weaknesses in research and technology delivery systems will all make the task of agricultural development very difficult.

There are nine impediments to solving agricultural production in developing countries

[if you need a quick list: soil infertility, no plan nutrients, acidic soil, salinated soil, waterlogged soil, bad infrastructure, land tenure, no credit, no tech assistance]

Marc J. **Cohen**, Ph.D., Special Assistant to the Director General, International Food Policy Research Institute, February **2001**, online: <http://www.isanet.org/archive/cohen.html>, accessed December 7, 2003

Small farmers in developing countries face many problems. Low soil fertility and lack of access to plant nutrients, along with acid, salinated, and waterlogged soils contribute to low yields, production risks, and natural resource degradation. Inadequate infrastructure, land tenure biased against poor people, poorly functioning markets, and lack of access to credit and technical assistance add impediments. Low agricultural productivity results in high unit costs of food, poverty, food insecurity, poor nutrition, low farmer and farm worker incomes, little demand for goods and services produced by poor nonagricultural rural households, and urban unemployment and underemployment.

Biotech food production could solve the spread of disease.

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 53

Beyond the food, feed, and fiber production benefits that can be forthcoming through biotech products, the possibility that plants can actually be used to vaccinate people against diseases, simply by growing and eating them, offers tremendous possibilities in poor countries. ¹³ This line of research and development should be pursued aggressively and probably through private-public partnerships, since traditional vaccination programs are costly and difficult to execute.

Crop yields can increase without the use of new biotech

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 48

Continued genetic improvement of food crops—using both conventional as well as biotechnology research tools—is needed to shift the yield frontier higher and to increase stability of yield. While biotechnology research tools offer much promise, it is also important to recognize that conventional plant-breeding methods are continuing to make significant contributions to improved food production and enhanced nutrition. In rice and wheat, three distinct but interrelated strategies are being pursued to increase genetic maximum yield potential: changes in plant architecture, hybridization, and wider genetic resource utilization.⁸ Significant progress has been made in all three areas, although widespread impact on farmers' fields is still probably 10 to 12 years away. The International Rice Research Institute (IRRI) claims that the new "super rice" plant type, in association with direct seeding, could increase rice yield potential by 20 to 25 percent.⁹

Hybrid crops increase crop yield.

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 49

The success of hybrid rice in China (now covering more than 50 percent of the irrigated area) has led to a renewed interest in hybrid wheat, when most research had been discontinued for various reasons, mainly low hybrid vigor and high seed production costs. However, recent improvements in chemical hybridization agents, advances in biotechnology, and the emergence of the new wheat plant type have made an assessment of hybrids worthwhile. With better hybrid vigor and increased grain filling, the yield frontier of the new wheat genotypes could be 25 to 30 percent above the current germplasm base. In addition, hybrid triticale offers the promise of higher yield potential than wheat for some areas and uses.

A2: transgenic crops bad

There is no evidence proving that transgenic crops are bad.

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 53-54

To date, there is no reliable scientific information to substantiate that transgenic crops are inherently hazardous. Recombinant DNA has been used for 25 years in pharmaceuticals, with no documented cases of harm attributed to the genetic modification process. So far, this is also the case in genetically modified foods. The seed industry has been doing a good job in ensuring that its transgenic crop varieties are safe to plant and that the food they produce is safe to eat.

poor nations cant afford organic

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 59

While the affluent nations can certainly afford to pay more for food produced by the so-called organic methods, the 1 billion chronically undernourished people of the low-income, food-deficit nations cannot. As the archaeologist Richard Leakey likes to remind his environmental supporters, “You have to have at least one square meal a day to be a conservationist.

bed planting can increase crop yields

Norman **Borlaug**, professor of International Agriculture at Texas A&M, **2002**, in *Global Warming and Other Eco-myths* edited by Ronald Bailey, pg. 47

An outstanding example of new Green/Blue Revolution technology in irrigated wheat production is the bed planting system, which has multiple advantages over conventional planting systems. Plant height and lodging are reduced, leading to 5 to 10 percent increases in yields and better grain quality. Water use is reduced 20 to 25 percent, a spectacular savings, and input efficiency (fertilizers and herbicides) is also greatly improved by 30 percent. This technology has already been adopted in northwest Mexico and is growing in acceptance in other countries, including Pakistan, India, and China.

Lomborg's assessment of agricultural yield ignores the role of oil in agricultural development

Douglas A. **Kysar**, Assistant Professor of Law, Cornell Law School. B.A., 1995, Indiana University. J.D., 1998, Harvard University, *Ecology Law Quarterly*, **2003**

To be fair, such technological optimism is not unique to Lomborg; indeed, it is reflected in the standard macroeconomic assumption that man-made capital is a perfect substitute for natural resources.ⁿ¹¹⁸ Nevertheless, it seems only fitting that a study billed as *The Skeptical Environmentalist* would adopt a slightly less credulous posture in making these predictions. After all, littered throughout Lomborg's tome are unintentional acknowledgments that modern production techniques - indeed, modern civilization - is heavily dependent upon fossil fuels. ⁿ¹¹⁹ For instance, when discussing the likelihood that agricultural productivity will keep pace with massive expected population increases, Lomborg vacillates wildly between acknowledging and ignoring the vital role that fossil fuels play in modern agricultural techniques. He claims that "the fall in the price of food is a genuine long-term tendency," on the same page that he attributes heavy price increases for food during the 1970s to the oil crisis. ⁿ¹²⁰ Later in the book Lomborg argues that "there seem to be no 'walls' for top [agricultural] yields ahead," ⁿ¹²¹ but on the next page [*243] he again recognizes that increased yields depend upon fossil-fuel intensive techniques of "irrigation and fertilization."ⁿ¹²² Turn one more page and we are back to the cheery conclusion that "there are good reasons to presume that [agricultural] development ... will continue with ever higher yields and consequently an ever larger agricultural production." ⁿ¹²³

Warming Solves African Drought

Thomas Gale **Moore**, adjunct scholar at the Cato Institute and senior fellow at the Hoover Institution, **1998**, *Climate of Fear: Why We Shouldn't Worry About Global Warming*, <http://www.cato.org/pubs/books/climate/023-68.pdf> (8-08-03)

As a senator, Al Gore, writing on the prospect of further global warming and its potential harm, contended that the temperature rise over the last century has led to increased drought in Africa (Gore 1992, 76). To bolster his argument, he presented a chart showing a decline in rainfall from 1930 to the early 1980s for portions of sub-Saharan Africa. His conclusion, however, is based on a false premise: for most of that period the earth was cooling, not warming! His chart actually implies that further cooling would be undesirable. In fact, history demonstrates and climatology attests that warming should drive the monsoon rains that originate near the equator farther north, possibly as far as the Sahara, contributing to a moister, not a drier, climate! Compared with the cooler periods of the last few thousand years, the Sahara was much wetter and more fertile during the Climatic Optimum (Lamb 1988, 21). Cave paintings from the epoch depict hippopotamuses, elephants, crocodiles, antelopes, and even canoes (Giles 1990, 115-16). The water level in Lake Chad, about 14° north of the equator in central Africa, was some 30 to 40 meters, that is, 90 to 125 feet, higher than it is today, an indication of much greater precipitation. Ruins of ancient irrigation channels in Arabia, probably from the warmest millennia, indicate that they derived their water from sources well above current water supplies, attesting to a wetter climate (Lamb 1977, 270). A warming would likely lead to similar conditions, not a strengthening of African drought. With the cooling that started after 3000 B.C., North Africa dried up and the abundance of life disappeared.

*** Aff Answers

Internal conflicts and refugee crises cause massive hunger

Marc J. **Cohen**, Ph.D., Special Assistant to the Director General, International Food Policy Research Institute, February **2001**, online: <http://www.isanet.org/archive/cohen.html>, accessed December 7, 2003

Since the end of the Cold War, internal conflicts have proliferated in developing and transition countries, particularly in Africa. Fourteen million refugees have fled these struggles, which have displaced another 20–30 million people within their own countries. Uprooted people are vulnerable to malnutrition and disease, and need humanitarian assistance to survive. Postconflict reconstruction takes years. Not only does violent conflict cause hunger, but hunger often contributes to conflict, especially when resources are scarce and perceptions of economic injustice are widespread.

AIDS Blocks Solvency

Xinhua General News Service **January 31, 2001, Wednesday**

The report, an assessment of the world's progress toward a sustainable society, also describes Uganda as a model for curbing the spread of HIV/AIDS, an epidemic that has killed 19 million people worldwide. "The key to this admirable success has been the active personal leadership of President Museveni at every step of the way," it says. "He has regularly addressed the issue in public, describing the mechanisms for transmitting the virus and the changes in behavior needed to curb its spread," says the report. It says that eliminating hunger from sub-Saharan Africa depended on curbing the HIV/AIDS epidemic, which deprives communities of the most active labor force. Uganda has achieved success in fighting against HIV/AIDS in the past two decades, bringing down the HIV/AIDS prevalence from over 30 percent in the 1980s and early 1990 to the current 9.5 percent.

Early warning prevents famine

Brian Stewart and Jill Umbach, Care Canada's Ethiopia Project Director, CBC TV, The National Magazine, 4-20-00

STEWART: There's been a lot of talk about this eventually - - eventually becoming something equivalent to 1984, but there are some differences right off the start, are there not? UMBACH: There are some key differences. One of them is the fact that right now we -- we have an early famine warning system that's been in place. We're able to target and do some indepth analysis of the situation so that we're able to actually direct donors, and this is in conjunction with the government of Ethiopia. We're able to direct donors, as to where the most needy are. We're able to identify pockets of areas that are -- are chronically vulnerable, but as well will be hard hit if aid doesn't reach them in the next three months. Additionally, the government of Ethiopia has a larger infrastructure with the disaster preparedness committees in place. And we've seen a larger commitment by the government of Ethiopia, as recent as in November, where they've put out a new appeal. In February, they announced another 100,000 metric tons for the reserves. And we're in a much better position now than we were back in '84, '85.