

# Food Resources

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# Food in the World

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30,000 plant species with parts people can eat

15 plants and 8 animals supply 90% of our food

Wheat, rice, and corn are half the calories people eat

66% of people eat mainly rice, wheat, and corn (grains)

The top third of the economic chain eats primarily meat.



# Types of Food Production

Industrialized agriculture

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Traditional agriculture



# Industrialized Agriculture

Industrialized agriculture-  
Use large amounts of fossil  
fuel energy, water,  
commercial fertilizers and  
pesticides to produce huge  
quantities of single crops  
or livestock animals for  
sale.



[www.alaskajournal.com/.../foc\\_20030804021](http://www.alaskajournal.com/.../foc_20030804021)

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# Traditional Agriculture

[members.aol.com/porkchopsplace/](http://members.aol.com/porkchopsplace/)

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Traditional agriculture-practiced by 2.7 people on earth

- Traditional subsistence agriculture-produce enough food to stay alive
- Traditional Intensive agriculture-farmers increase inputs of human and draft labor, fertilizer and water to get a higher yield per area of cultivated land to produce enough food for families, and their income

# Green Revolution

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Involves 3 steps

1. Developing and planting monocultures of selectively bred or genetically engineered high yield varieties of key crops
2. Lavishing fertilizer, pesticides, and water on crops to produce high yields
3. Often increasing the intensity and frequency of cropping

# Food Production in the U.S.

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Since 1940, food production in the U.S. has more than doubled crop production

9% of population is involved in the U.S. agricultural system.

Generates 18% of countries GNP

# Livestock Production

Meat products are sources of quality protein.

Between 1950 and 1996, world meat production increased fourfold and per capita meat production rose by 29%.

14% of U.S. topsoil is associated with livestock grazing.

Cattle belch out 12-15% of all the methane released into the atmosphere

Some say if Americans cut their grain intake by 16%, this would save enough grain to provide a subsistence diet for nearly 900 million people.



[about.reuters.com/ids/products/onlinerep.htm](http://about.reuters.com/ids/products/onlinerep.htm)

# Interplanting

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Polyvarietal cultivation-Where plot is planted with several varieties of the same crop

Intercropping-two or more different crops grown at same time on a plot

Agroforestry- Crops and trees are planted together

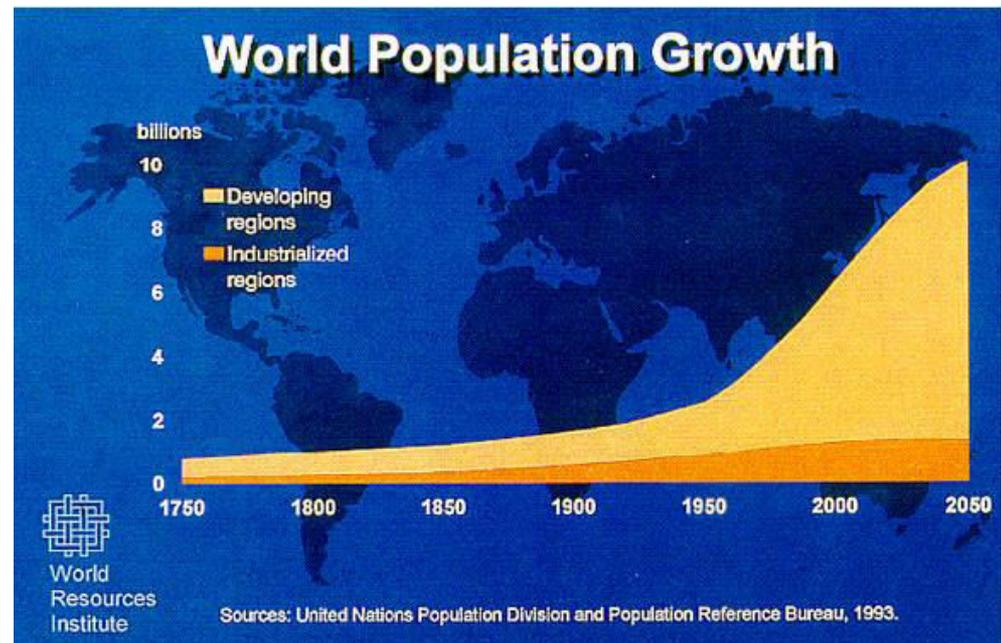
Polyculture-Many different plants mature at various times, and are planted together.

# World Food Problems

## Reasons for problems:

- Population growth
- Increasing affluence
- Degradation and loss of cropland
- Little growth in irrigation
- Decline in global fertilizer

[www.fi.edu/guide/hughes/finiteresources.html](http://www.fi.edu/guide/hughes/finiteresources.html)



# Undernutrition

Undernutrition-Consuming insufficient food to meet one's minimum daily energy requirement for a long enough time to cause harmful effects



[www.hellfirepass.com/index\\_pow.htm](http://www.hellfirepass.com/index_pow.htm)

# Malnutrition

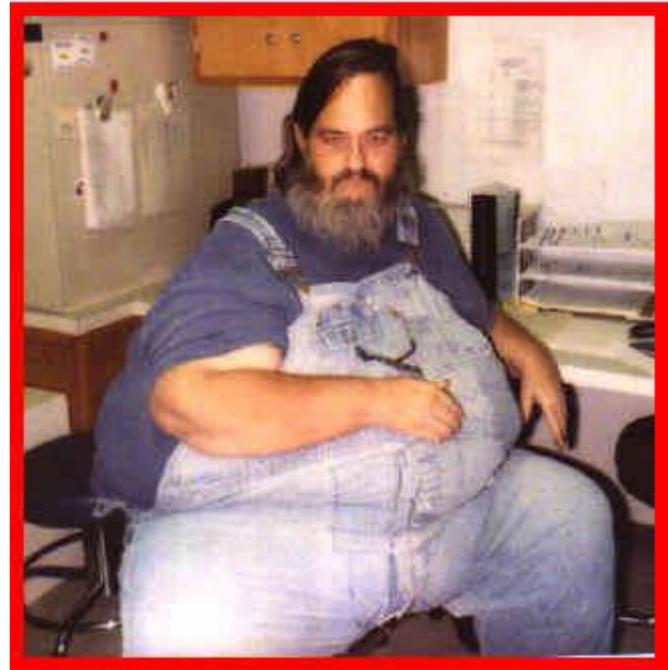
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Malnutrition-Faulty nutrition. Caused by a diet that does not supply a persons with enough protein, essential fats, vitamins, minerals, and other nutrients.

# Overnutrition

Overnutrition-an excessive intake of food, especially fats

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[fulton.edzone.net/winkler/ chapter05/chapter05.htm](http://fulton.edzone.net/winkler/chapter05/chapter05.htm)

# Good News!

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Between 1970 and 1995, worldwide proportion of people suffering from undernutrition went from 36% to 14%.

Number of malnourished people fell from 940 million in 1970 to 850 million in 1995.

We produce more than enough food to meet the basic nutritional needs of every person on earth today

# Environmental Effects of Producing Food

Agriculture has a greater harmful impact on air, soil, water, and biodiversity resources than any other human activity.



[ptcl.chem.ox.ac.uk/MSDS/HY/hydrochloric\\_acid.html](http://ptcl.chem.ox.ac.uk/MSDS/HY/hydrochloric_acid.html)

# Increasing Crop Yields

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Agricultural experts expect most future increases in food yields per hectare on existing cropland to result from improved strains of plants and from expansion of green revolution technology

# Cultivation of Land

36% of the world's land is devoted to raising crops.

Some think that cultivating more land is a possible solution to the food crisis.



[www.cahe.nmsu.edu/employee/cca/](http://www.cahe.nmsu.edu/employee/cca/)

# Food Growth in Urban Areas

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Urban gardens provide 15% of world's food.

If people grew more food in their backyards, they could live more sustainable and save money.

# Fishing

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3<sup>rd</sup> major food producing system consists of fisheries

99% of fish caught in ocean is from the coastal waters

Between 1950 and 1996, fish catch increased 4.9 fold



# Problems With Fishing

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Overfishing-Taking of so many fish that too little breeding stock is left to maintain numbers

Commercial extinction-reduction of a species to the point at which it's no longer profitable to hunt for them

# Aquaculture

Aquaculture—where fish and shellfish are raised for food

Supplies 20% of world's commercial food harvest

Increased 3.3 fold between 1984 and 1996



[www.un.org/.../portuguese/2003/aug/030811.html](http://www.un.org/.../portuguese/2003/aug/030811.html)

# Gov. assistance to farmers and consumers

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Keep food prices low

Give farmers subsidies to keep them in business and to encourage them to increase food production

Eliminate most or all price controls and subsidies

Continue Agricultural research

# Sustainable Agricultural

Sustainable Agricultural-  
Method of growing crops  
and raising livestock based  
on organic fertilizers, soil  
conservation, water  
conservation, biological  
control of pests, and  
minimal use of  
nonrenewable fossil fuel  
energy



[www.sare.org/htdocs/sare/about.html](http://www.sare.org/htdocs/sare/about.html)

# Bibliography

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Miller, Tyler G. Living in the Environment,  
Brooks/Cole Publishing Company, New  
York: 2000.