**Comparing Food Production Systems**

Food Production Systems can vary from location to location. Your challenge is to become intimately familiar with two contrasting food production systems. These systems can be whatever you choose but must be "comparable." A possible "way in" is to think of a food commodity: say cereal grains, beef or aq and research to find two very different ways of growing this commodity.

Task:

1. Select two contracting farming systems in two different countries (i.e.subsistence and commercial)
2. Your case study should cover FOUR main elements:
   1. Food production – what are the TWO types of food production systems (may be terrestrial or aquatic) taking place? How much is produced in each system? What are the inputs and outputs of each system? Can you explain these patterns and trends?
   2. Environmental impact - How do each of the two systems affect the environment? biodiversity? pollutants? climate change?
   3. Agricultural consumption – what do people consume? How much is imported / exported? Food miles?
   4. The future – what are the key challenges for agriculture in the region – now and in the future? What are some solutions? Are they sustainable?
3. Factors to be used in comparing and contrasting food production systems include:

* **inputs**, such as fertilizers (artificial or organic); water (irrigation or rainfall); pest control (pesticides or natural predators); labor (mechanized and fossil fuel dependent or physical labor); seed (genetically modified organisms—GMOs—or conventional); breeding stock (domestic or wild); livestock growth promoters (antibiotics or hormones versus organic or none)
* **outputs,** such as food quality, food quantity, pollutants (air, soil, water), consumer health, soil quality (erosion, degradation, fertility); common pollutants released from food production systems include fertilizers, pesticides, fungicides, antibiotics, hormones and gasses from the use of fossil fuels; transportation, processing and packaging of food may also lead to further pollution from fossil fuels
* **system characteristics**, such as diversity (monoculture versus polyculture); sustainability; indigenous versus introduced crop species
* e**nvironmental impacts,** such as pollution (air, soil, water); habitat loss; biodiversity loss; soil erosion or degradation; desertification; disease
* **socio - cultural impacts,** example for the Maasai, cattle equals wealth and quantity is more important than quality

Possible ideas:

* Intensive beef production in a named region of the developed world, e.g. Argentina
* Norfolk grasslands - UK
* Slash and burn subsistence farming in Peru
* Extensive cattle farming in East-Africa
* Subsistence farming in South India, including paddy fields
* Nomadic herding in the Maasai Mara
* Indigenous shifting cultivation farmers in the Amazonian rainforest in Brazil
* The Dogon people in West Africa
* Subsistence farming on the Indonesian Island of Roti
* Organic rice farming in Coastal Kerala, India (Pokkali Farming)
* Rice-Fish farming in China
* Sheep farming in Australia
* Alpine Farming in Switzerland – transhumance
* Spice production in Indonesia or India, e.g. cardamom, nutmeg or vanilla
* Burma’s floating islands (http://earthobservatory.nasa.gov/IOTD/view.php?id=85606)
* Cuban polyculture

Here are some suggested sources of visuals / information:

* [www.worldmapper.org](http://www.worldmapper.org) - go to <http://www.worldmapper.org/atozindex.html> and look up ‘agriculture’ or ‘food and drink’.
* <https://www.cia.gov/the-world-factbook/> - good for data. Information about agriculture for each country is under the ‘economy’ section for that country.

**Comparing two Terrestrial food production systems**

System Name:

| **Location** | **Systems Characteristics** |
| --- | --- |
| Inputs | Outputs |
| Environmental Impacts on soil fertility and soil erosion.(Topic 5.3) | |
| Socio - cultural impacts | Any other information (facts and Figures) |
| Soil management strategies | |
| Draw a systems diagram for the food production system | |

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Use the following rubric.

| **Criteria** | **7** | **6 - 5** | **4 - 3** | **2 - 1** |
| --- | --- | --- | --- | --- |
| Identifies the characteristics of both countries food production systems | Creates,labels and **cites all appropriate** maps, images and graphs; identifies and demonstrates a sophisticated understanding of the characteristics of both countries food production systems systems | Creates, labels **appropriate** maps, images or graphs; demonstrates an accomplished understanding of the characteristics of both countries food production systems | Creates **acceptable** maps, images and graphs; demonstrates an acceptable understanding of the characteristics both countries food production systems | **Limited** use of maps, images or graphs; demonstrates a weak understanding both countries food production systems |
| Identifies the inputs and outputs that would impact the food production system | Identifies and demonstrates a **sophisticated** understanding of the main inputs and outputs that would impact the food production system | Identifies and demonstrates an **accomplished** understanding of most of the main inputs and outputs that would impact the food production system | Identifies and demonstrates **acceptable** understanding of some of the inputs and outputs that would impact the food production system | Identifies and demonstrates a **weak** understanding of some of the inputs and outputs that would impact the food production system |
| Identifies the environmental impacts in both countries caused by food production systems | Identifies and demonstrates a **sophisticated** understanding of the main environmental impacts caused by the food production systems of both countries | Identifies and demonstrates an **accomplished** understanding of most of the environmental impacts caused by the food production systems of both countries | Identifies and demonstrates **acceptable** understanding of some of the environmental impacts caused by the food production systems of both countries | Identifies and demonstrates a **weak** understanding of some of the environmental impacts caused by the food production systems of at least one country |
| Draw a systems diagram for the food production system | Presents a **sophisticated,** **insightful and thorough** systems diagram to include all relevant inputs, outputs and flows | Presents a **thorough** systems diagram to include all relevant inputs, outputs and flows | Presents a **limited** systems diagram that include some inputs, outputs and flows | Presents an **incomplete** systems diagram |
| Identifies the socio-culture aspects in both countries of the food production systems | Identifies and demonstrates a **sophisticated** understanding of the main socio-culture aspects of the food production systems of both countries | Identifies and demonstrates an **accomplished** understanding of most of the socio-culture aspects of the food production systems of both countries | Identifies and demonstrates **acceptable** understanding of some of the socio-culture aspects of the that would impact the food production system | Identifies and demonstrates a **weak** understanding of the socio-culture aspects that would impact the food production system |
| Links to Course Reading and Additional Research | **Excellent** research into the issues with clearly documented links to class (and/or outside) reading | **Good** research and documented links to the material read | **Limited** research and documented links to any reading | **Incomplete** research and links to any reading. |
| Case Study Requirements | **All** paper requirements are correctly met | Missing **1-2** paper requirements | Missing **3-4** paper requirements | Missing **5+** paper requirements |
| Visuals | Visuals **augmented and extend** comprehension of the issues in unique ways | Use of visuals **related** to the material | Limited use of visuals **loosely related** to the material | **No** use of visuals |