



**SUSTAINABLE
FARMING**

Description: Sustainable Farming is a process that is vitally needed in our time and age if we want to secure our future environment and generation to have farmlands still able to produce healthy food.

- ✓ What is sustainable farming
- ✓ Benefits of sustainable farming
- ✓ How to attain sustainable farming
 - ✓ Legumes
 - ✓ Satisfy Human Needs
 - ✓ Composting
 - ✓ Crop Rotation
- ✓ Examples of sustainable farming

Learning Outcomes

- Have an understanding what sustainable farming is
- Know the different components to attain sustainable farming
- Appreciate it's an always changing concept relative to political/economical/scientific advancements of the world.

WHAT IS SUSTAINABLE FARMING?

In simplest terms, sustainable agriculture is the production of food, fiber, or other plant or animal products using farming techniques that protect the environment, public health, human communities, and animal welfare.

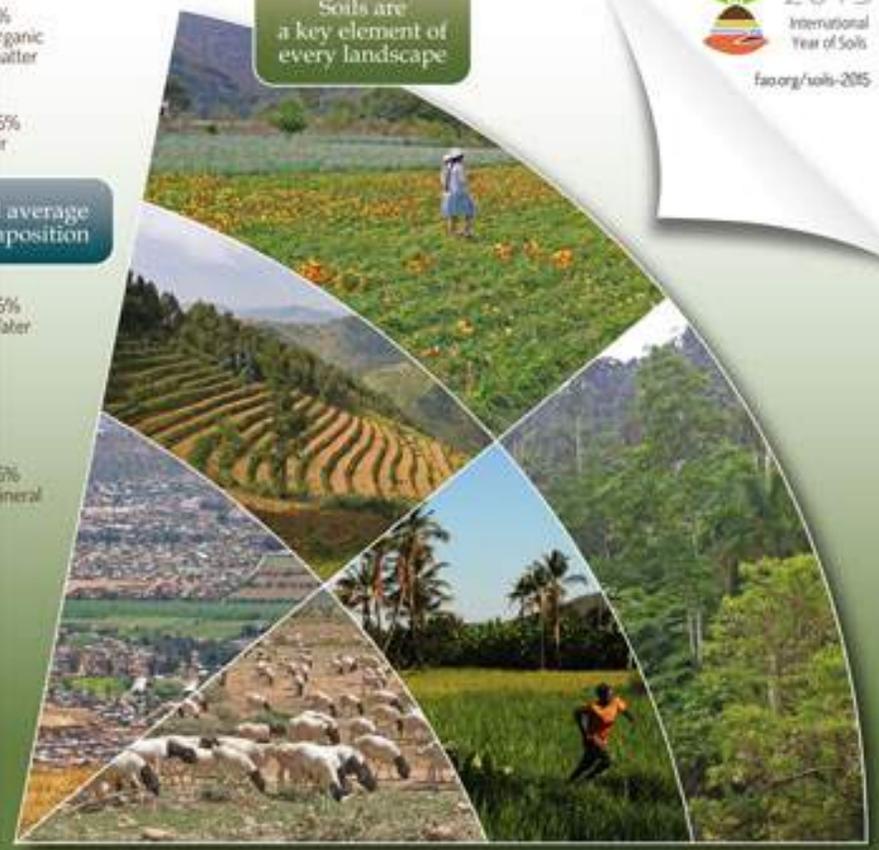
This form of agriculture enables us to produce healthful food without compromising future generations' ability to do the same.



how Soil is formed



Soils are a key element of every landscape



Soils around the world are very diverse

BENEFITS OF SUSTAINABLE FARMING

Farming Aspect

- Refreshes the nutrients in the soil to secure a producing farming area for years to come.
- Protects the soil from soil erosion
- Minimizes Greenhouse gas emissions
- Increases the resilience of pastures

LEGUMES (COVER CROPS)

Legume refers to a plant / fruit / seed that are primarily grown for their grain seeds called pulse. Examples of legumes are alfalfas, clovers, peas, beans, chickpeas, lentils and soybeans.

Legume cover crops are used to:

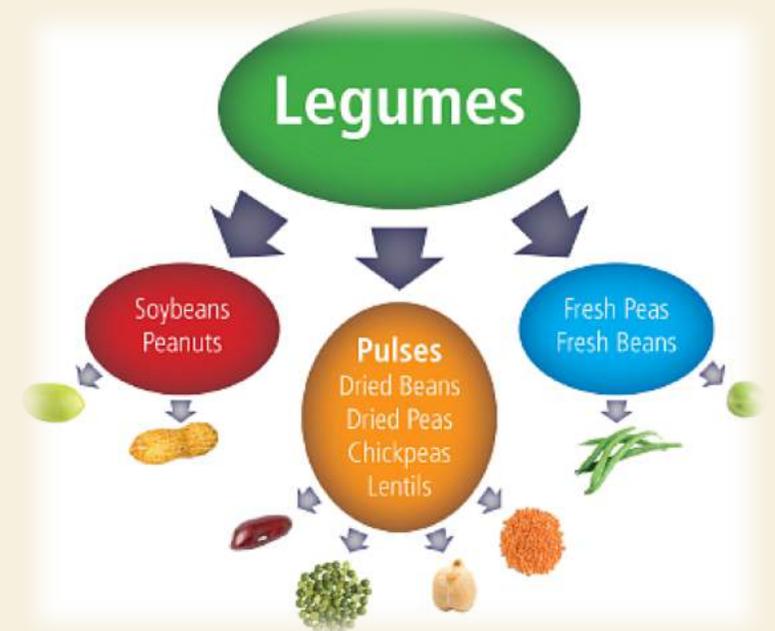
- Fix atmospheric nitrogen (N) for use by subsequent crops

- Reduce or prevent erosion

- Produce biomass and add organic matter to the soil

- Attract beneficial insects

Pulses are the dried seeds that are very high in protein and fibre and low in fat.



CROP ROTATION

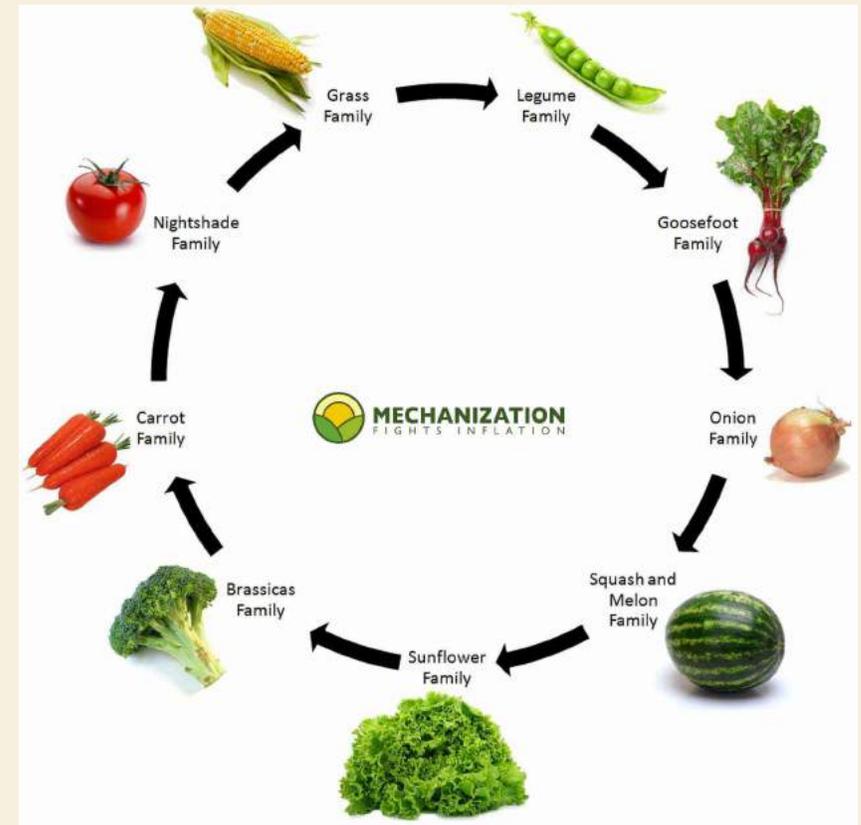
Crop rotation is the process of rotating the crop you grow in a piece of land where you farm.

By rotating the types of crop you grow depending on the choice of crop and how frequent it will influence the nutrient regeneration in the soil.

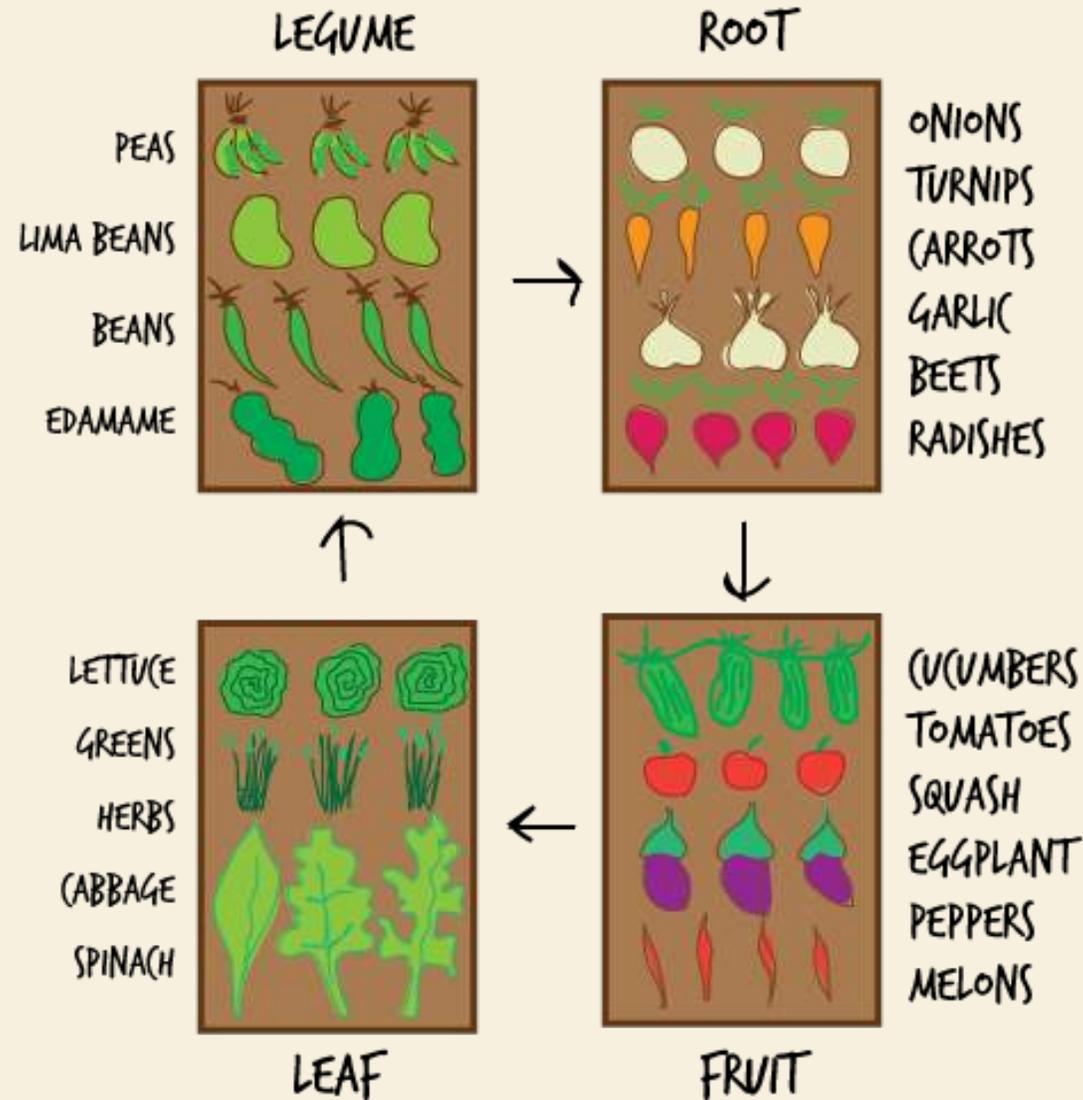
The factors to take into account is the type of crop and the soil depth the nutrients are taken from.

An integral part of how crop rotation will work is by growing cover crops.

By growing these cover crops these add back Nitrogen into the soil and can also slow soil



CROP ROTATION MAP



SOIL EROSION

When natural vegetation is cleared and when farmland is ploughed, the exposed topsoil is often blown away by wind or washed away by rain. Erosion due to soy production, for example, sees Brazil lose 55 million tons of topsoil every year. This leads to reduced soil fertility and degraded land.

There are alternative ways to farm that don't involve plowing. One is called no-till farming. Basically, instead of plowing a field, farmers plant new crops down through the residue left over from previous crops.

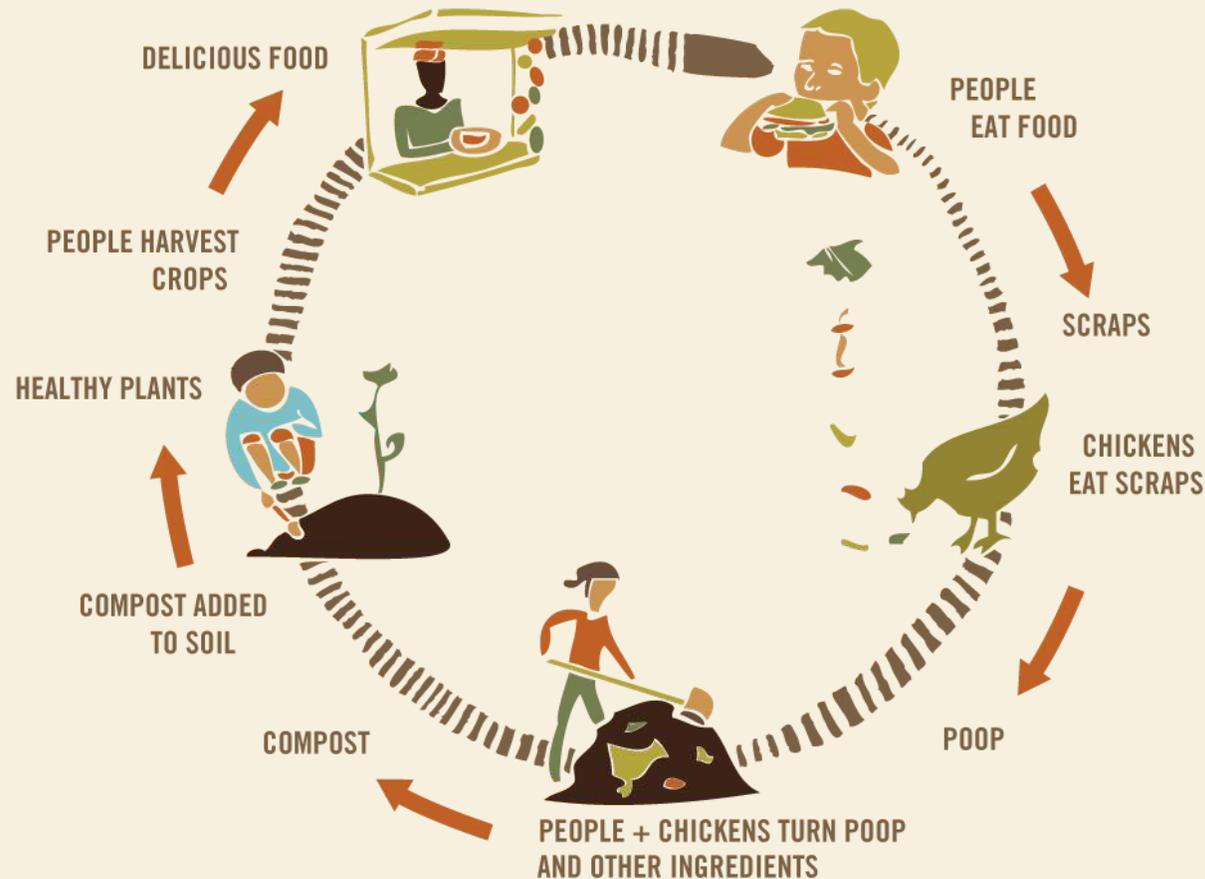
The left-over stalks and cutting act like an organic blanket protecting the soil from runoff. Of course, no-till farming also leaves more weeds, which requires farmers to use more herbicide, so there is a tradeoff.



Soil Erosion taking place from exposed soil.

COMPOSTING

Composting is integral to a sustainable farm as the supply of fertilizers need to be sustainable so people tend to have animals in the farm to produce the fertilizer but also get animal products like cows milk to make it sustainable.



HUMAN SUSTAINABILITY

Sustainable farming also needs to be able to satisfy human demand of food. If it doesn't then there's no point in doing this method of farming if it's not going to be enough food for us. In the end it's going to be changed for a more efficient yet sustainable farming method.

Due to this sustainable farming is always evolving in that technological advances will keep improving yields, improving sustainability in that less nutrients are needed etc.

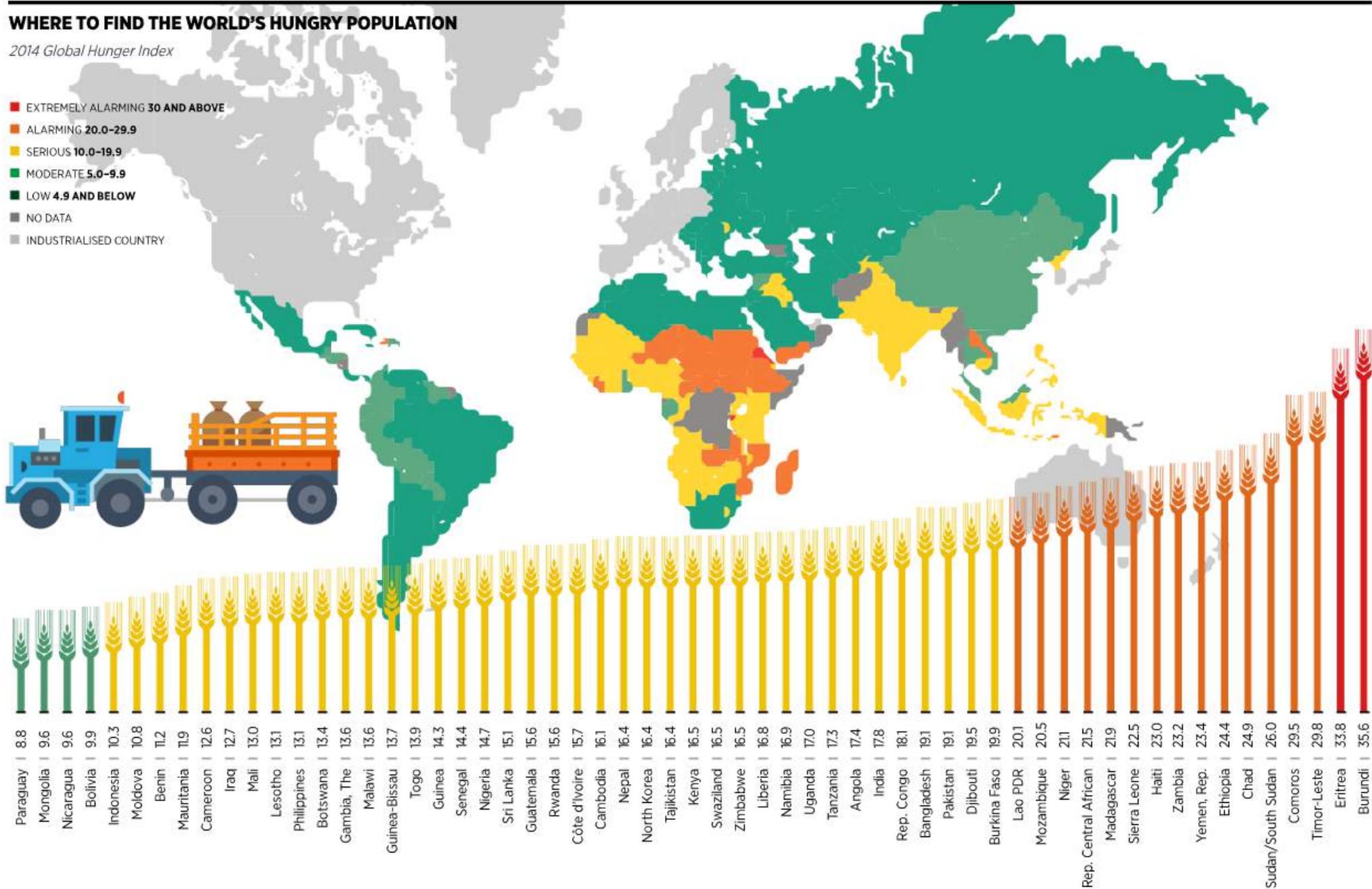


HUMAN
NEEDS
FOOD
PANTRY

WHERE TO FIND THE WORLD'S HUNGRY POPULATION

2014 Global Hunger Index

- EXTREMELY ALARMING 30 AND ABOVE
- ALARMING 20.0-29.9
- SERIOUS 10.0-19.9
- MODERATE 5.0-9.9
- LOW 4.9 AND BELOW
- NO DATA
- INDUSTRIALISED COUNTRY



Source: Welthungerhilfe/IFPRI/Concern Worldwide 2014

ECONOMICAL SUSTAINABILITY

Similar to human sustainability this needs to be addressed as if the farm method is not economically sustainable then its not realistic to keep the farm going as its losing money in the long term. However this is very volatile as agriculture in some countries like France are very subsidized which makes it more affordable to do farming. So the governments role in agriculture is vital as well so this can vary from location to location.



