

# FOOD ON MARS

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# OVERVIEW

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# Human Diet on Earth

## CALORIC CONSUMPTION

Women 1,200 cal/day

Men 1,800 cal/day

## NUTRIENTS

Carbohydrates, fats, fiber, minerals, protein, vitamins & water

## GLOBAL DIET

749 g produce, 403 g grain, 280 g dairy & eggs, 173 g meat, 130 g sugar & fats, and 143 g other

# Three Diets on Mars

## PLANT BASED

Doable and the most sustainable  
Plants, nuts, grains, soy

## TRADITIONAL ANIMALS

Expensive and requires further research  
Chicken, tilapia

## LAB GROWN MEAT

Newly developed process  
Memphis Meat



**Plants!**

# How to Grow Plants



## SOIL

pH of 6 or 7  
Free draining  
N, P, K, Mg, S, Ca

## WATER

The right amount  
Photosynthesis  
Electron to CO<sub>2</sub>

## AIR

Sunlight  
Carbon Dioxide  
Right temperature

# Martian Soil

## GOOD

Has the necessary nutrients

## BAD

Not everywhere or evenly across the planet

Perchlorates are bad for humans and plants

## SOLUTION

Fertilizer and biological matter

Rinse out soil with a sprinkler system

# Martian Atmosphere

## GOOD

95% carbon dioxide

## BAD

Low temperature averaging at -80 degrees Fahrenheit

Atmosphere 100 times thinner than Earth

Water freezes

Extraction

## SOLUTION

Short term      Spacecraft style habitat with LED lights as the source of light

Long term      Thick plastic green house with the sun as the source of light

# Martian Water



## GOOD

H<sub>2</sub>O ice has been discovered

Subsurface liquid water is presumed to exist

Creating and reclaiming technologies exist

## BAD

Has yet to be found in a liquid state

Has yet to be proven

## SOLUTION

Mine it and melt it down to liquid state

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**In conclusion, humans won't  
starve on Mars.**

**Thanks! Questions?**