

Moringa Introduction

Moringaceae is a family of trees native to India, the Red Sea area, and parts of Africa.

Moringa oleifera is the most popular of the 13 known species.



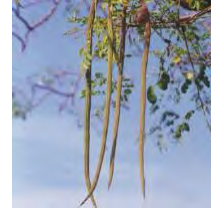
Leaves:
Nutrition
Medicine



Flowers:
Medicine



Pods:
Nutrition
Medicine



Uses of Moringa

Roots:
Medicine



Seeds:
Water Purification
Medicine and Oil



Bark:
Medicine



Courtesy of Trees for Life

Moringa and Health:

(22 out of 95)

Bacterial Infections
Toothaches
Common Cold
Warts
HIV/AIDS
Intestinal Parasites
Earache
Fever
Throat Infection
Asthma
Tumors

Cancer
Anemia
Hypertension
Diabetes
Thyroid
Snakebite
Diarrhea
Dysentery
Ulcers
Arthritis
Gout

Dr. Jed Fahey, Trees for Life Journal



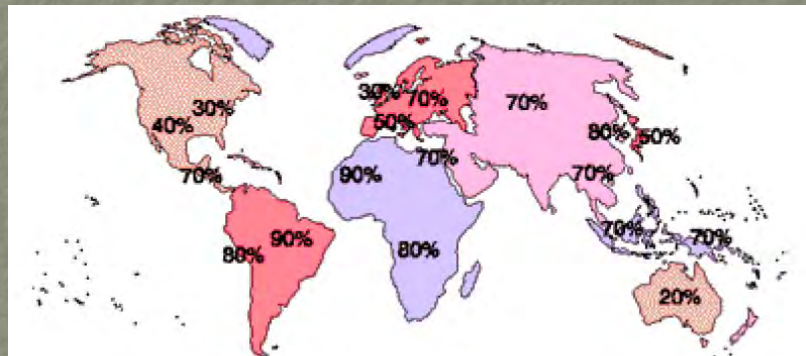
Moringa research in the late 1940's identified phytochemicals including glucosinolates and isothiocyanates

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Anticancer
Antibacterial
Hypotensive

Helicobacter pylori : human pathogen causing gastritis, stomach ulcers, and stomach cancer

Moringa very effective at controlling this pathogen

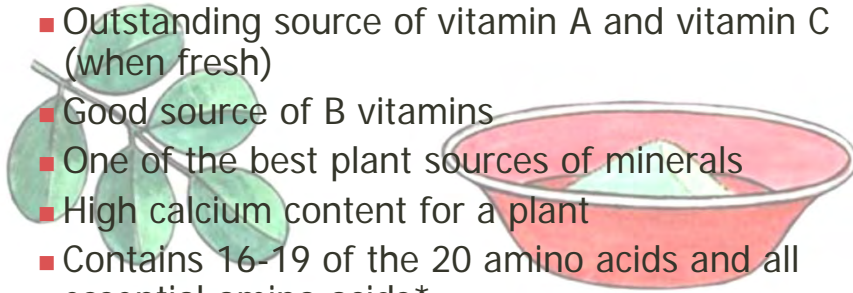


Percentages of population infected with H. pylori as determined by epidemiological studies. Within national populations, rates of infection vary across subsets and may be attributed to socioeconomic conditions in childhood.

Image courtesy of The Helicobacter Foundation.

Moringa for Good Nutrition

- Moringa leaves can be eaten fresh, cooked or dried and crushed into a powder
- Outstanding source of vitamin A and vitamin C (when fresh)
- Good source of B vitamins
- One of the best plant sources of minerals
- High calcium content for a plant
- Contains 16-19 of the 20 amino acids and all essential amino acids*
- Excellent source of protein



*Methionine+Cystine level is 21 and should be at 25 to be considered a "complete" protein



Moringa Project in Mauritania



Mauritania:

90% Desert
300mm rain/yr
Frequent droughts

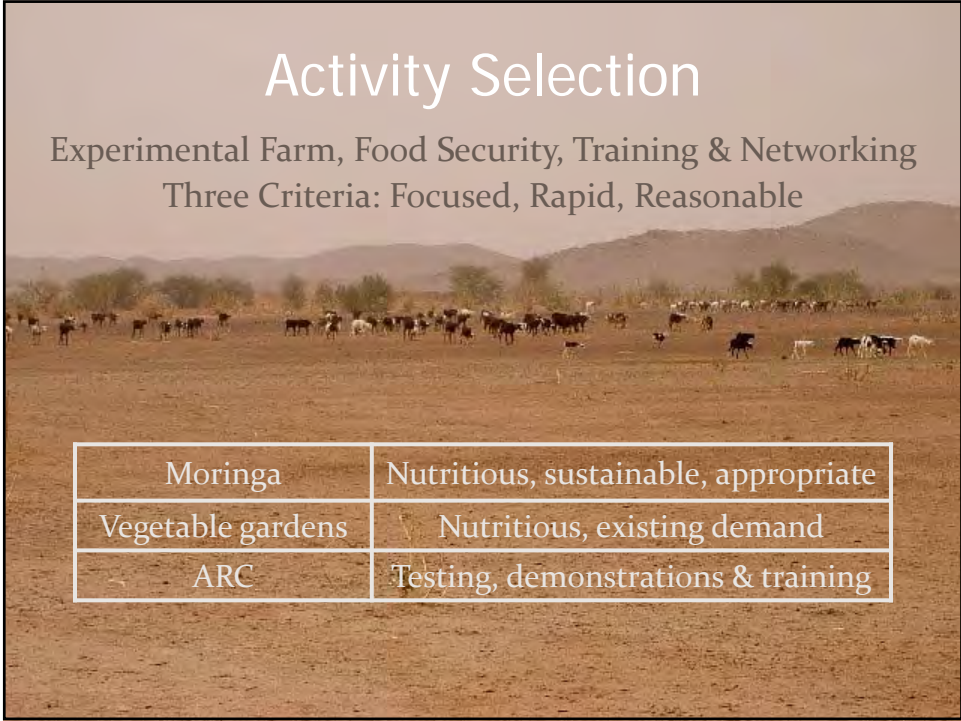
1960- 90% nomadic
2001- 4.7% nomadic



Problems: water, desertification, sun & heat intensity, poor yields, poor soils, pests, livestock damage, bird damage, no "land", inadequate tools & inputs, malnutrition

Activity Selection

Experimental Farm, Food Security, Training & Networking
Three Criteria: Focused, Rapid, Reasonable



Moringa	Nutritious, sustainable, appropriate
Vegetable gardens	Nutritious, existing demand
ARC	Testing, demonstrations & training

The goal of the project was:
"Improved health and nutrition of partner communities through improved access and consumption of Moringa and vegetables."

The initial phase of this project targeted 8 communities with 5 sites in each community and 20 families/cooperatives participating in each site for a total of 40 sites and 800 families/cooperatives.

At the end of the first phase there were actually 42 active sites with 1449 families/cooperatives participating.

Why Moringa?

Protein & VitA for malnutrition & immune system
Perennial tree with deep roots
Grown in region



Moringa can contribute to good nutrition

- fresh leaves in salads or on sandwiches
- cooked leaves in sauces or soups
- dried leaf powder added to weaning food
- dried leaf powder added to meals

Moringa in Mauritania

Moringa Introduction

Participant Selection

Participant Instruction

Moringa Planting

Moringa Leaf Powder
Training



Participant Selection



Moringa Planting & Participant Instruction



Moringa Leaf Powder Training



Moringa Leaf Powder

Leaves are 75% moisture
and need to be dried to
10% moisture
so these leaves.....



...reduced to this powder

Moringa Leaf Powder

From 75% moisture to 10%:

Fresh weight x .35 = dry weight

Dry weight x 2.86 = fresh weight

10kg powder x 2.86 =
28.6kg fresh leaves

10kg fresh leaves x .35 =
3.5kg leaf powder

General estimate = 8:1



Moringa Leaf Powder

Moringa Leaf Powder that is properly cleaned and dried can be stored up to **three months:**

[3 months storage → 50% beta carotene; 6 months storage → no beta carotene]

- store in air-tight containers
- protect from light
- keep below 24°C (75 °F)
- protect from humidity





25 women on Iron & 25 on Moringa Powder for 5 months

Moringa:

- avg weight gain of 5.388kg
- no anemia, no dizziness, no fatigue, no loss of appetite
- felt good
- best health during a pregnancy
- easily available


Iron:

- avg weight gain of 3.3kg
- nausea and dizziness (2 women stopped taking it)
- expensive

25 infants on Moringa for months 4-9

- avg weight gain on moringa 2.468kg
- avg weight gain on control 2.162kg
- infants on moringa had fewer episodes of diarrhea (typically the biggest cause of malnutrition in this age group)





10 Children in the "Red Zone"

- 4 years
12kg/26.46lb
- 3 years
11kg/24.25lb
- 2 years
10kg/22.05lb
- 17 months
6kg/13.23lb

10 Children in the Red Zone

Within 2 months all but one were out of the red zone,
within 4 months all 10 were in the green zone

2 children (over 2 years old) who could not walk at
beginning were walking by the end

Fewer cases of diarrhea

Average gain
of 2kg
per child
over the
4 month period





- Initial survival rate of 74% (1423 trees out of 1920)
- In 2006 90% of respondents know about Moringa
- In 2006 65% of households growing Moringa
- Household access to Moringa increased from ½ month to 8 months
- Households that consume Moringa at least once a day increased from 1% to over 33%
- “Residents consume Moringa three times per day and there are not enough trees to meet local demand.”
- Moringa leaf powder being sold in local markets for 14¢-71¢ per tea cup

Health clinic provided publicity



Can grow to
suit needs



Can harvest to suit needs



Able to harvest within 6 months



Easy to introduce Moringa leaf powder
because of Baobab leaf powder



Quick health impacts



Moringa Web Resources

ECHO: www.echocommunity.org

Moringa News: www.moringanews.org

Trees for Life: www.treesforlife.org

email: echo@echonet.org