

## COMPANION PLANTING

### **Brandon Merchant**

- •Owner of Southwest Victory Gardens
- •Pima County Certified Master Gardener
- SmartScape Certified
- •Former President of Tucson Organic Gardeners





### WWW.SOUTHWESTVICTORYGARDENS.COM/DOCUMENTS

# **Our Philosophy**

- Healthy soil encourages healthy plants
- Healthy plants require fewer pesticides and fertilizers (inputs)
- Limit external inputs
- Reduce water usage
- •Garden with our climate not against it
- •Encourage a natural ecosystem



## **Companion Planting**

Planting multiple crops in close proximity so that they may benefit the growth of one another.
Companion planting is a form of Polyculture, which is a central principle of organic gardening.



### **COMPANION PLANTING VEGETABLES**



garden365<sup>™</sup>

garden365.com

R Companion Planting Chart

### Some Natural Insect Repellant Tips

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### Mildew Chives . Dried Sage

· Nettle · . Mosquitoes Tansy · Pennyroyal

· Garlic · Wormwood · Sassafras. 15 . Place near windows wes . & doors or rub on armint . your skin tinging rlic •

### Moths

Sage · Mint · Rosemary . Thyme · Pennyroyal · Wormwood . Lavender ·

Spearmint . .

### Red Spider Onion ·

. Slugs

> Wormwood . .

epper on Oak leaf mulch . ·es • Dry Rosemary .

Snails

Garlic: Collect w/cabbage leaves or inverted citrus peel cups

.

Thrips 0. Pyrethrum · · Eau . e . Mint .

Tomato Worm Garlic . .

Weevils il • Garlic +

. White Fly ettle •

Nasturtiums • seradish Basil: Use as spray

## **Plant Diversity**



- Replicates Nature
- Increases Yield
- Decreases Pests
- Looks Better



### **Plant Relationships**

- Fertilizers
- Repellants
- Attractants
- Nurse Cropping

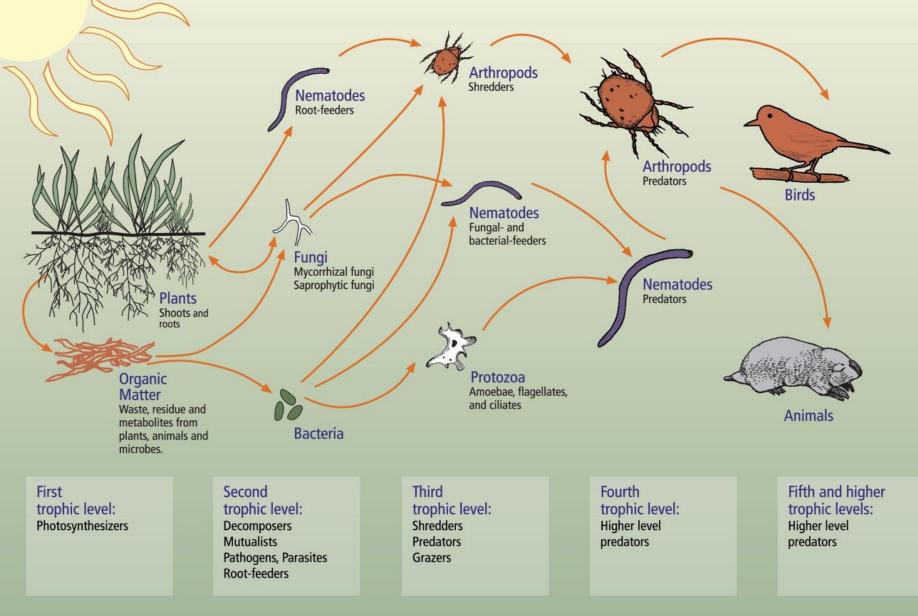


### Plants that Fertilize

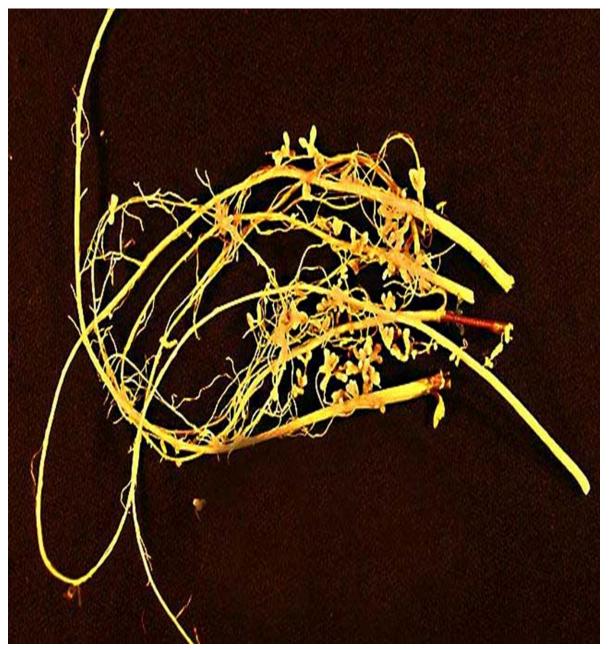


- Legumes "fix" Nitrogen
  Bio-mass crops Feed
  Soil Food Web
- All Plants Fertilize

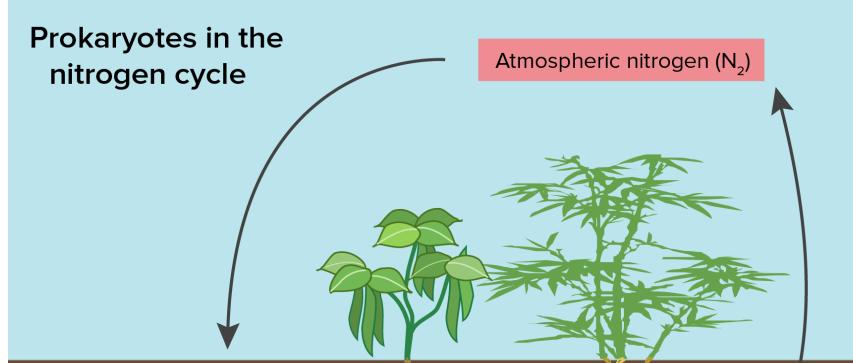
# The Soil Food Web



### Importance of Legumes



- Crop Rotation
- Nitrogen Fixation
- Rhizobia



Nitrogen-fixing prokaryotes: convert  $N_2$  to ammonia (NH<sub>3</sub>)

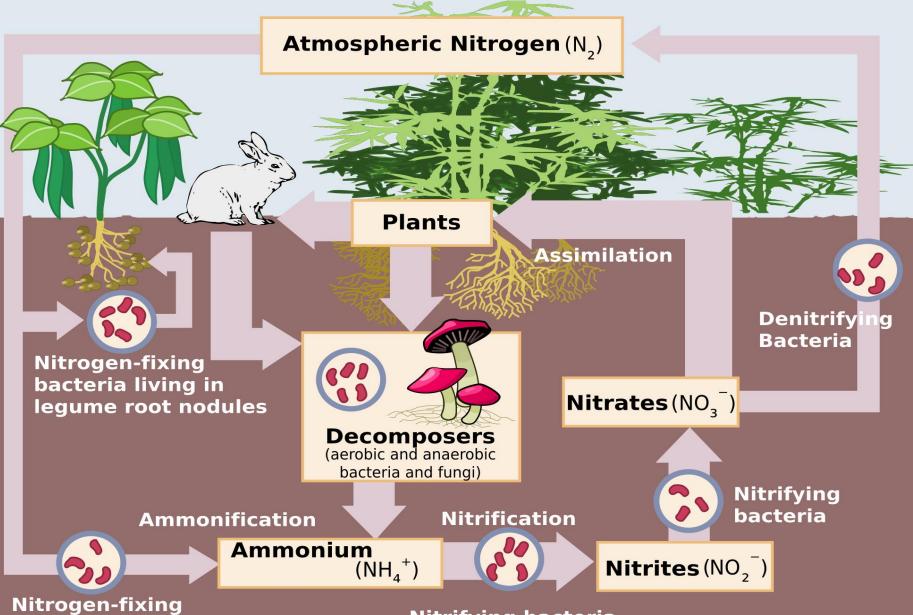
### ີ່ທີ

Nitrifying prokaryotes: convert NH<sub>3</sub> to nitrites (NO<sub>2</sub><sup>-</sup>) and nitrates (NO<sub>3</sub><sup>-</sup>)



Denitrifying prokaryotes: convert nitrates to N<sub>2</sub>

### Nitrogen Cycle



Nitrifying bacteria

soil bacteria

### How to Build Healthy Soils

- Eliminate Synthetic Pesticides/Fertilizers
- Encourage the Soil Food Web
- Use Compost and Compost Teas
- No Till or Low Till
- Use Supplements if Needed
- Grow Roots Not Plants



## **Growing Legumes**



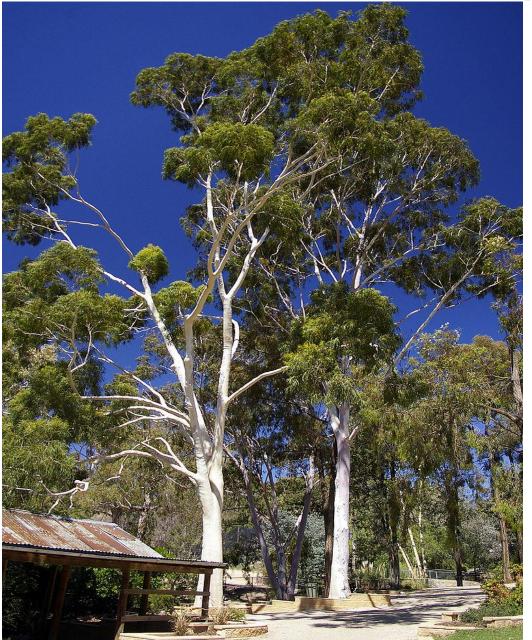
Warm Season – Bush Beans, Lima
Hot Season – Pole Bean, Tepary, Cowpea
Cool Season – Peas, Garbanzo and Fava

## **Cool Season Legumes**

- Peas
  - Sugar Snap
  - Snow Pea
  - Shelling
- Fava
  - •Tough to Grow
- •Garbanso or "Chickpea"
  - •One Seed Pima Cty.



### Plants that Repel Pests



- Strong Smelling
- Alliums
- Herbs
- Flowers



### TUCSON ORGANIC GARDENERS PLANTING GUIDE FOR TUCSON AND THE LOW DESERT

### Jan 1 - Feb 15

### FROM SEED

Arugula, Broccoli, Cabbage, Chinese Cabbage, Cauliflower, Celery, Cilantro, Collards, Dill, Fennel, Kale, Lettuce, Mustard Parsley, Bulb Onion (See Graphic), Potato

### FROM SEEDLING TRANSPLANT

Artichoke, Broccoli, Cabbage, Chinese Cabbage, Cauliflower, Celery, Cilantro, Collards, Dill, Fennel, Kale, Lettuce, Mustard, Parsley, Spinach, Swiss Chard.

### April 15 - May 31

### FROM SEED

Amaranth, Basil, Cantaloupe, Cowpea, Cucumber, Malabar Spinach, Melon, Okra, Sorghum, Sweet Potato Slips, Summer Squash, Watermelon

### FROM SEEDLING TRANSPLANT

Basil, Eggplant, Pepper

### July 15 - August 31

### FROM SEED

Bush Beans, Pole Beans, Corn (all types), Cowpea, Cucumber, Cantaloupe, l'Itois Onion (See Graphic), Pumpkin, Sorghum Summer and Winter Squash

### FROM SEEDLING TRANSPLANT

Tomato (July 15 - Aug 15)

MONSOON

### Oct 15 - Nov 15

### FROM SEED

Beets, Carrots, Garlic, Greens, Lettuce, Mustard, Pea, Radish, Turnip, Wheat (December - January)

### FROM SEEDLING TRANSPLANT

Broccoli, Cabbage, Chinese Cabbage, Cauliflower, Celery, Cilantro, Collards, Dill, Fennel, Kale, Lettuce, Mustard Parsley, Spinach, Swiss Chard

LATE WINTER





EARLY FALL



March 1 – April 15

SPRING

### FROM SEED

Amaranth, Basil, Bush Bean, Corn (Sweet), Cucumber, Jerusalem Artichoke, Malabar Spinach, Melon, Pumpkin, Sesame, Sorghum, Summer and Winter Squash, Tobacco, Watermelon

### FROM SEEDLING TRANSPLANT

Basil, Eggplant, Pepper, Tomato, Tomatillo

June 1 - June 15

### FROM SEED

Pole Beans, Cantaloupe, Cowpea, Melon, Sweet Potato Slips

### Sep 1 - Oct 15 FROM SEED

Arugula, Beet, Bok Choy, Broccoli, Brussels Sprouts, Cabbage, Carrot, Cauliflower, Celery, Chia, Chicory, Chinese Cabbage, Cilantro, Collards, Escarole, Fava, Garbanzo, Greens, Kale, Kohlrabi, Leek, Lentils, Lettuce, Mache, Mustard, Onion (See Graphic), Parsley, Parsnip, Pea, Radish, Rape, Rutabaga, Turnip, Spinach, Swiss Chard

### FROM SEEDLING TRANSPLANT

Broccoli, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Celery, Cilantro, Dill, Fennel, Kale, Lettuce, Mustard, Parsley, Spinach, Swiss Chard

"SHORT-DAY" BULB ONION SETS January 1 - February 15

### ONIONS

TOHONO O'ODHAM I'ITOIS MULTIPLIER ONION

July 15 - February 1

**GREEN BUNCHING/SCALLION** August 15 - February 1

### What is an Herb?

- Any Plant used for Flavoring, Medicine, or Perfume.
- Herbs: Leaves & Flowers
- Spices: Seed, Bark, Root



### Growing Habits of Herbs



- Annual Herbs: Live Only
   One Season
- Biennial: Live Two
   Seasons
- Perennial: Live Longer than Two Seasons

### **Plants that Attract Beneficials**

- Anything with a Flower
- Native Plants
- Flowers all year
- Good Bug Blend



### **Carrot Family Herbs**



- From Milder Climates
- Tend to be Cool Season
   Biennial or Annual
- Grow well From Seed
- Can be Used as Herb,
   Spice, or Vegetable
- Excellent Companion Plants

- Grown for Leaves and Ribs or Stalks
- More Leafy in our Climate
- Mirepoix Staple

# Celery



### Cilantro



World's Most
Consumed Herb
Grow "Slow
Bolting" Types
Harvest Seed as
Corriander

# Dill

- Great Butterfly Attractor
- "Mammoth" Type does Well
- Taste of Pickles
- Goes Well with
   Fish



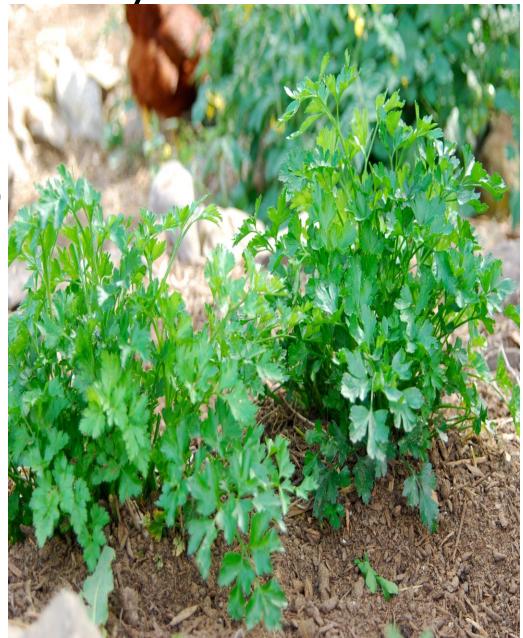
# Fennel



- Leaves used as Herb
- Stalk Used as a Vegetable
- Can Live Several
   Years
- Delicious Seed

### Parsley

- Flat Leaf (Italian)
   Grows Well
- Curly Leaf (Hungarian) also good.
- Used Extensively in European Cooking
- Harvest Flat Leaf when Young and Curly when Mature.



## **Other Carrot Family Plants**



- Angelica
- Chervil
- Culantro
- Lovage
- Mitusba

### **Plants that Attract Pests**

- Trap Cropping
- Sacrificial Plants
- Susceptible Varieties
- Resistant Varieties



# Nurse Cropping



# **Growth Support**

- Trellis Plants
- •Tall Sturdy Plant
- Single Stalk
  - Corn
  - Okra
  - Sunflower



## Shade and Humidity



- Sprawling and Vining Plants
- Weed Suppression
- Ground Covers
  - Winter Squash
  - Sweet Potato
  - Pole Beans



### WWW.SOUTHWESTVICTORYGARDENS.COM/DOCUMENTS

### RESOURCES

- Tanks Green Stuff
- •EcoGro
- Reading List
- •Gardening Clubs
- Local Businesses
- •Friends and Family







### Thank you! (520) 576-7085