

## Companion Planting

Bio-Intensive Gardening techniques not only maximize yields in smaller spaces, but produce healthy vigorous pesticide free crops which are healthier to eat (being pesticide free), and cheaper to produce releasing funds normally spent on chemicals for other needs and allow more plants to be grown in small spaces, in health and vigor, and providing abundant harvest

The three major components are: Compost, Double-Digging, and Companion Planting

Each beneficial in it's own way, when combined major beneficial results are:

- soil and space conservation;
- insect deterrence.

## Soil & Space Conservation

### *Advantages of Living Mulch*

Placing plants as close as possible without interference with each other's growth maximises available space strengthens soil structure making it more resistant

- Large plants protect soil from wind / rain erosion
- Leaves from larger plants shade soil helping to retain moisture creating micro climate.
- Moist soil is more able to receive water without having water run off
- Weeds begin to struggle with less area to grow, and light source blocked

\*\*It is important to realize that plants are not be able to serve this function in early stages of growth. Organic mulch offers a temporary solution until the living mulch is able to take over. Sources for organic mulches are natural browns, ie: dried leaves, hay, corn husks, wood chip, grass clippings (not too dense / lightly scattered). Once the plants become big enough to work as living mulch, the two types of mulch work together to achieve maximum health.

### *Efficient Planting (think triangles)*

Plant each plant equidistant to each other is more efficient than planting in rows. (Please see distance chart)

### *Crop Rotation (Leaf – Fruit – Root – Legume) and Companion Plants*

Different plants interact in different ways with the nutrients in the soil.

- **Light Feeders (LF)** take a small amount of nutrients
- **Heavy Feeders (HF)** take a large amount of nutrients from the soil
- **Heavy Givers (HG)** give nutrients back to soil

Heavy Feeder crops planted year after year into the same soil without conditioning will affect condition of soil

Heavy Feeders should not be grown in the same space two years running .

Rotating plants is critical for garden success 1/helps replenish the soil 2/ may break disease and insect cycles Simple leaf-fruit-root-legume cropping patterns should encourage healthy fertile growth with less damage from insect and disease.

### *Insect Deterrent - Crop Variation*

Many pests have only one food – long lines of the same crop makes life easy. A large variety of crops in each bed / crop variation is a type of natural protection, making it harder for pests to find their food

***Insect / Disease Deterrent - Companion Planting*** Strong plants are more likely to resist diseases.

Many plants release chemicals into the soil, which will make some plants strong (beneficials) and others weak (antagonists) Planting vegetables alongside other plants that make them less susceptible to pests and disease. (Please see list of companions and antagonists )

**Beneficials :** flowers/herbs/insects that make plants stronger & resitant to pests/disease reducing need for pesticides

### **Advantages of Transplanting / Growing Seed in Flats or Beds :**

Seedbeds require less care / water than crop beds, saving time and water

Best seedlings can be selected and planting up to first leaves ensures strong stem giving plant advantage

Transplanting in evening or dull days will prevent excessive wilting and allow a greater opportunity to thrive,  
 Seedlings under attack by pests can be discarded or placed next to plants which will attract predators to your pest  
 Allowing the process of pests to evolve and attract predators will make you plants stronger than removing predators by chemicals

### Spacing Distances for Plants

<u>Plant</u>	<u>Distance (Spacing)</u>		<u>HG, HF, or LF</u>		
African Eggplant	60cm	HF	Mustard	15cm	HF
Amaranth (for greens)	10cm	HF	Nightshade	20cm	HF
Asparagus	30 cm	HF	Okra	15cm	HF
Basil	15cm	HF	Onions	10cm	LF
Beans	17cm	HG	Parsley	10cm	HF
Beets	10cm	LF	Peas	10cm	HG
Broccoli	35cm	HF	Peppers, Hot	30cm	HF
Chin. Cabbage	25cm	HF	Peppers, Sweet	30cm	HF
Cabbage	35cm	HF	Potato, Irish 15cmdepth	22cm	LF
Carrots	7cm	LF	Potato, Sweet 6" deep	22cm	LF
Comfrey, Russian	30cm	HF	Pumpkin	50cm	HF
Cauliflower	35cm	HF	Radishes	5cm	LF
Swiss Chard	20cm	HF	Shallots	10cm	HF
Collards	28cm	HF	Soybeans	15cm	HG
Corn	40cm	HF	Spinach	15cm	HF
Cucumbers	25cm	HF	Strawberries	30cm	HF
Eggplant	44cm	HF	Swiss Chard	20cm	HF
Garlic	10cm	LF	Sunflower	45cm	HF
Horseradish	28cm	LF	Tomatoes	40cm	HF
Kale	35cm	HF	Tomatoes, Cherry	40cm	HF
Leeks	15cm	LF	Turnips	10cm	LF
Lettuce, Head	30cm	HF	Watermelon	50cm	HF
Lettuce , Leaf	22cm	HF	Zucchini	45cm	HF

### Common Vegetables,

### Companions

### Antagonists

Asparagus	Tomatoes, Parsley, Basil	
Beans	Almost all vegetables	Onions, garlic
Beets	Onions	Some beans
Cabbage cauliflower	Aromatic herbs, potatoes, dill, sage, mint	Strawberries, tomatoes, some beans
kale, broccoli, etc	rosemary, beets, onions	
Carrots	Peas, lettuce, chives, onions, leeks, rosemary, sage, tomatoes	Dill
Chives	Carrots	Peas, beans
Corn	Potatoes, peas, beans, cauliflower, cabbage	
Cucumbers	Beans, corn, peas, radishes, sunflowers	Potatoes, aromatic herbs
Eggplant	Beans	
Leeks	Onions, carrots	

<b>Common Vegetables,</b>	<b>Companions</b>	<b>Antagonists</b>
Lettuce	Carrots, strawberries, cucumbers	
Onions (and garlic)	Beets, strawberries, tomatoes, lettuce, parsley	Peas, beans
Parsley	Tomatoes, asparagus	
Peas	Most vegetables	Onions, garlic, Potatoes
Potatoes	Beans, corn, cabbage, horseradish, marigold eggplant	Pumpkins, squash, cucumber, sunflower, tomatoes
Pumpkins	Corn	Potatoes
Radishes	Peas, nasturtiums, lettuce, cucumbers	
Soybeans	Grows with anything	
Spinach	Strawberries	
Squash	Nasturtiums, corn	
Strawberries	Beans, spinach, lettuce	Cabbage
Tomatoes	Chives, onions, parsley, asparagus, marigold, nasturtiums, carrots	Potatoes, fennel, cabbage

Herbs and Flowers : deter insects and strengthen soil.

Basil	Companion to tomatoes, dislikes rue intensely. Improves growth and flavor. Repels flies & mosquitoes
Chives	Companion to carrots; improves growth and flavor.
Dill	Companion to cabbage; dislikes carrots; improves growth and health of cabbage
Fennel	Plant away from gardens. Most plants dislike it.
Garlic	Deters beetles.
Hyssop	Deters cabbage moth; companion to cabbage.
Marigolds	Workhorse of pest deterrents. Plant everywhere to discourage many pests esp beetles & nematodes.
Mint	Companion to cabbage, and tomatoes; improves health and flavor; Deters white cabbage moth.
Nasturtium	Companion to radishes and cabbage; plant under fruit trees. Deters aphids, squash bugs, striped pumpkin beetle. Improves growth and flavor. Eat the leaves as well as the flowers.
Petunia	Protects beans
Calendula	Companion to tomatoes, but plant elsewhere in the garden too. Deters asparagus beetle, tomato worm, and general garden pests.
Rosemary	Companion to cabbage, beans, carrots, and sage; Deters cabbage moth, bean beetles, and carrot fly
Sage	Plant with rosemary, cabbage, and carrots; keep away from cucumbers. Deters cabbage moth, carrot fly.
Tarragon	Good throughout garden
Morning Glory	Grow with corn.