

# How to Plant a Biointensive Garden



## WHAT IS IT?

A planting technique where seeds or seedlings are planted in a hexagonal pattern. Often biointensive planting also includes planting plants closer together than they usually are because beds are deeply prepared and roots are encouraged to grow down instead of out.

## WHY DO WE DO IT?

Biointensive planting creates a completely closed canopy when crops are mature. The closed canopy shades soils so that weed pressure, raindrop impact, and water loss from evaporation are all reduced. Biointensive planting utilizes all available bed space, allowing more crops to be grown in the same space.

### Benefits of Biointensive Planting

- **Increased plant density.** Closer spacing results in more plants in a given area.
- **Improved plant health.** A closed canopy preserves soil moisture and creates conditions for beneficial soil microbes.
- **Increased root quantity.** Greater plant density and healthier plants results in more root growth within soil, which leads to healthier soils in the long term.
- **Decreased weed pressure.** A closed canopy reduces sunlight and slows weed growth.
- **Decreased water requirements.** A closed canopy preserves soil moisture.
- **Regulated soil temperature.** A closed canopy shades soil from intense sun.



## TERMS USED

**Biointensive:** Refers to 'Biointensive Agriculture': An organic agriculture system that focuses on sustainably maximizing output with minimal land, while also increasing biodiversity and maintaining soil fertility.

**Double digging:** A form of deep soil preparation where the topsoil is first removed and the subsoil loosened and heavily amended in a step-by-step manner. Double dug beds are usually loosened and prepared to a depth of 40 - 60 cm into the soil.

## HOW TO

# Plant a Biointensive Garden



## METHOD

### STEP 1

Choose the growing bed to be planted. Prepare it with double digging and amend it with organic materials.

### STEP 2

Select seedlings for planting or seeds to direct sow.

### STEP 3

Locate a straight stick that is the length of the desired distance between the crop variety being planted.

### STEP 4

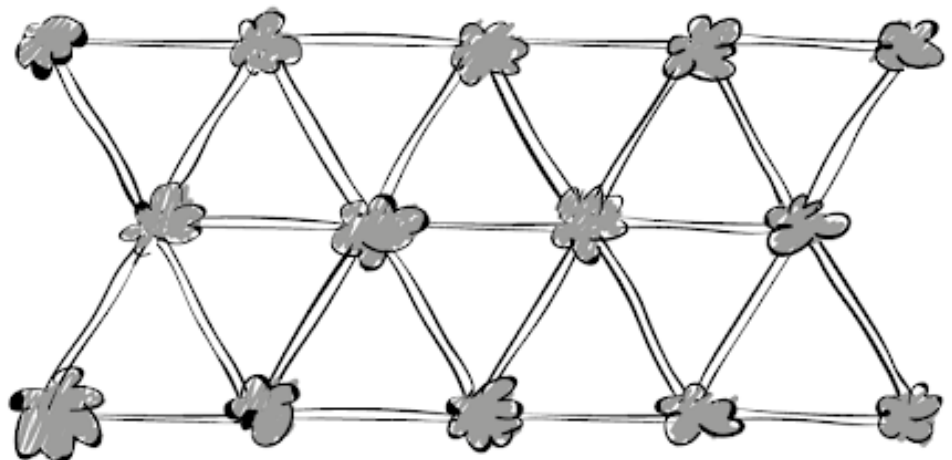
Start in one of the corners of the bed and use the stick to mark planting locations along that end of the bed. Dig those holes by hand.

### STEP 5

Use the stick to form a triangle between two of the holes and a point further into the bed. Dig a new hole at that point. All three sides of the triangle should be the same length.

## SEED SPACING FOR DIRECT-SEEDED CROPS

CROP	SPACING IN GARDEN BED (cm)
Amaranth (seed/greens)	Broadcast lightly, thin to (30 cm/15 cm)
Beans (dry/green) and cowpeas	15 cm
Carrots	Broadcast lightly, thin to 5 cm
Chickpeas (Garbanzo Beans)	10–15 cm
Garlic (cloves)	10 cm
Groundnuts	22 cm
Irish potatoes (sprouted tubers)	25 cm
Maize	30 cm
Millet	15 cm
Onions (use roots from past crop)	15 cm
Pumpkins	100 cm (allow to spread)
Radishes	5 cm
Sweet Potatoes (stem cuttings)	25 cm
Wheat	12 cm
Zucchini	45 cm (can plant two per hill)



### STEP 6

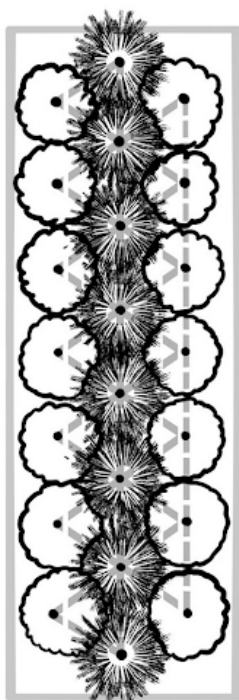
Continue until all holes have been marked and dug. After the entire bed is completed, the pattern should appear as many small triangles.

### STEP 7

Place one seed or seedling in each hole. Brush soil around the seedling so that the seedling is covered up to the point where it was submerged in the nursery bed. Lightly press the soil around the seedling to get good contact between the soil and the roots. Water the seedlings or seeds. Keep the soil moist over the next several days.

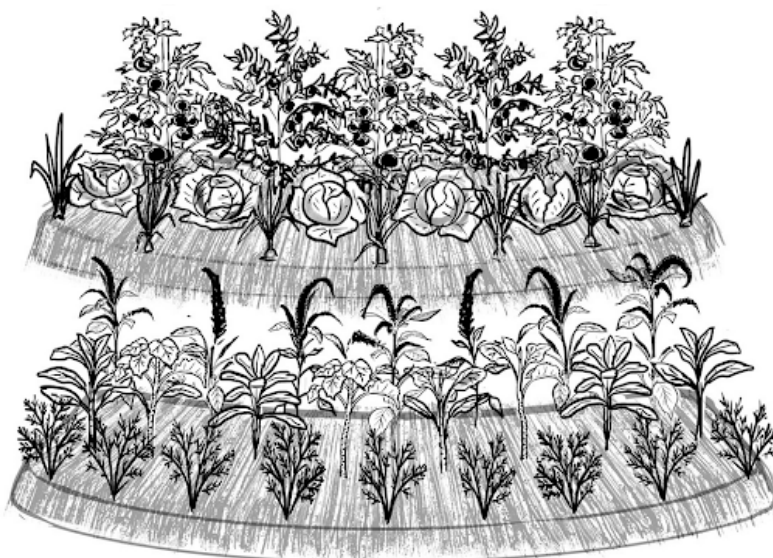
### STEP 8

Mulch the bed. Ensure that the bare soil is covered but that the mulch does not touch the base of any seedling.



### SEED SPACING (IN TRAYS) FOR TRANSPLANTED SEEDLING

CROP	SPACING IN SEED TRAY (cm)	SPACING IN GARDEN BED (cm)
Broccoli	5 cm	45 cm
Cabbage	5 cm	45 cm
Cucumber	5 cm	30 cm (train to grow up trellis)
Eggplant	5 cm	45 cm
Kale	5 cm	20 cm
Head Lettuce	Broadcast then thin to 6 cm	25 cm
Onion	5 cm (or less)	15 cm
Pepper	5 cm	45 cm
Spinach	Broadcast then thin to 6 cm	12 cm
Swiss Chard	5 cm	20 cm
Tomato	5 cm	45 cm (stake up with poles)



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