Food Policy and the Need for Change

There is a growing "Earth-friendly" revolution taking hold — the desire to have more choice and control in the foods we consume. Food gardening at home, or in a community plot, is part of a broad shift in consciousness that focuses on wellness, nutrition and self-sufficiency. Personal or community food security allows households to provide more of their food needs and/or to share their harvest with others in need.

Home food gardening reacquaints us with optimally fresh, tasty and nutritious fruits and vegetables costing a fraction of store-bought produce that is often shipped long distances. It teaches children that fruits and vegetables come from the earth, not grown in grocery stores. It inspires us to be healthwise — to remember that *we are what we eat*. Importantly, food gardening can save us hundreds of dollars a year in food expenses.

If you want to save the Earth —
begin with the earth in your own backyard

The Old Model

Food policy today is primarily based on creating a dependent ***consumer*** whose needs are determined by government, large corporations, agribusinesses, politics, and media marketing. As a result, home food production and preservation in the U.S. has declined from 35% of households in 1870 to only 1% in 2005. Additionally (and in spite of scientific advances), people suffer from diminished health and healthcare, poor air, water and soil quality, and overprocessed, nutrient-poor foods.

Perhaps most detrimental to individuals is the loss of a heartfelt and informed connection to this Earth: its soil, water, air, habitat and species. Earth's natural resources are too often associated with commodities. As a result, people forget to live simply so that others, and this Earth, may simply live. They misplace the spirit of stewardship and generosity.

The New Model

The basic foundation of a new food policy restores informed choice as a ***prosumer*** — one who is empowered in their lifestyle habits and needs to be part of a broader solution to respect Earth's resources, to live within one's means, to commit to personal wellness, and to help others in need. It also brings the focus of food sufficiency to the local level — one's household, neighborhood and community. It supports local/regional family-based agriculture. Most importantly, a new food policy model restores personal confidence in knowing that we have a voice — personally, locally, nationally — in the well-being of our lives, the lives of others, and this Earth and all its resources and species.

This Book — One Small Step

It is our commitment — indeed, our hope — that this low-cost guide supports those initial steps to the jouney of a lifetime: not only to know the joy of co-creating with Nature, but to experience a new level of responsibility for your own health, nutritional, and food security needs. By caring for the Earth, may you be inspired to follow the way of the hummingbird: *To sip the nectar without bruising the flower.*

CONTENTS

Note: *To ensure optimal success, you may need to adapt techniques in this guide according to your region, growing zone, soil type & climatic conditions.*

How to Use This Guide

According to the Gardening Season — Follow the Steps for each season shown in the **Inside & Back covers**. Topic locations are shown in yellow sidebar

Gardening Basics — Information is organized by topic to easily guide you. You may find it helpful to progress from front to back in this booklet

Nutrition Connection & Charts — These topics are grouped in the middle pages of this guide, pp. 28-43

RAISED-BEDS

Elevated methods of agriculture help combat heavy clay or rocky soils, poor drainage, limited space, climate, and terrain issues. In the home garden, raised-beds give a sense of order and ease in planting and maintenance. Intensive planting can also increase yield from 4-10 times over flat ground gardening.

Beyond the initial cost and time to create raised beds, you will find gardening to be easier!

Advantages

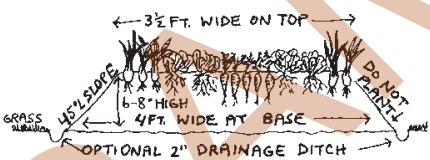
- Improved soil quality & tilth
- Very good drainage
- Requires no rototilling
- Soil warms early for Spring planting
- Year-round planting options
- Longer growing season
- Easy watering & fertilizing
- More intensive planting
- Can protect & cover
- Easy for elderly & alter-abled
- All-around easy access

Mounded Beds

Mounded beds are simple to make and can be framed with wood or rocks later. Here's how to do it.

1. **Dig** out an area of grass or soil, say 4x12 feet (48 square feet)
2. **Add** about the same proportions of soil ammendments and fertilizers as for wood/rock beds (see chart, to the right)
3. **Slope** the sides to prevent rain & watering erosion Bed's height will be 6-8 inches, width 3.5 feet
4. **Edge** the base regularly to keep out grass or weeds

Mounded Bed

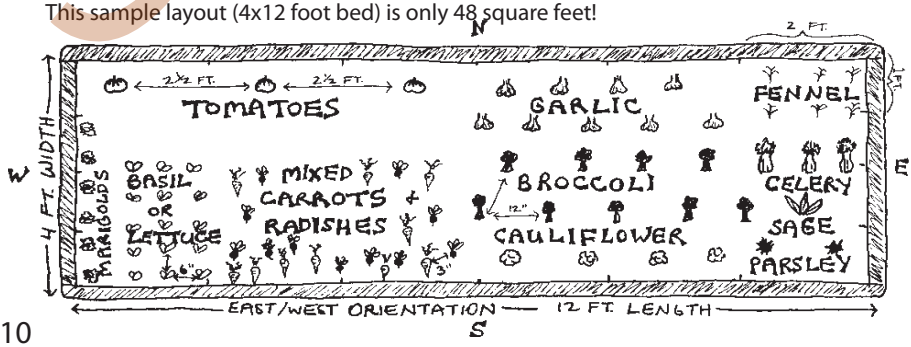


Design Tips for Wood Beds

- No pressure treated wood or tires (poisonous!)
- Use 2x6, 2x8, 2x10 or 2x12 dimensional lumber
- **Length**: 8-12 feet is ideal (or shorter if small space)
- **Width**: 4-feet (easy reach without stepping into)
- **Height**: minimum 8 inches to 12 inches (best)

Intensive Planting

Raised-beds are perfect for **Intensive Planting** because the depth & quality of the soil is so good. You will be amazed at how much more you can grow in the same amount of space. The most efficient way to plant is in "wide rows" (not single rows that can waste space). This sample layout (4x12 foot bed) is only 48 square feet!



Filling the Raised-Bed

To fill your raised-bed (or to create a mounded-bed,) you will need these ingredients:

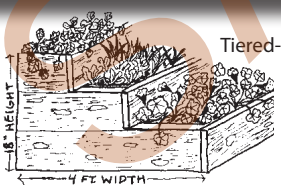
- **Sandy Loam** (preferred), or weed-free soil
- **Compost** or other organic matter like leaf mulch
- **Manure** - aged, dry (will not Nitrogen-burn plants)
- **Fertilizers** (organic, to be Earth-friendly)

Don't have any of these? Check your local garden center or outdoor supply store. Bulk or bagged vegetable garden planting mixes are also available that contain compost, manure and fertilizers. Simply add such mixes in the proper quantity to your loam/soil base.

Volume Needed for Main Ingredients of a Raised-Bed

Ingredients	High Bed 4'x12' (48 sq ft) 18 inches high	Low Bed 4'x12' (48 sq ft) 12 inches high	Low Bed 4'x8' (32 sq ft) 12 inches high
Manure (15%)	1/2 cu yd	1/3 cu yd	1/4 cu yd
Compost (35%)	1 cu yd	2/3 cu yd	1/2 cu yd
Sandy Loam (50%)	1.5 cu yd	1 cu yd	3/4 cu yd

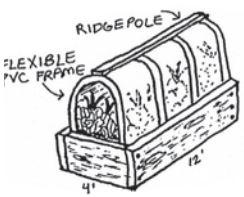
- 3-feet clearance on all sides
- Nail long sides out, ends inside
- 10-15 feet from trees
- 18" height for elderly, alter-abled
- Protective covering (page 23)
- East-west placement lengthwise
- Aesthetic integration to garden
- Tiered-bed option

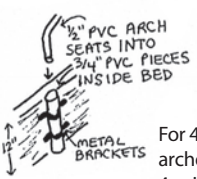


Tiered-bed is creative and easy for elderly & kids. Gentle on the back, too!

Protection from Weather

(Cold, wind, heat/sun, young starts, greens)





For 4-foot wide beds — Use 8-foot lengths of 1/2" pvc pipes arched over bed, held securely in place and covered with 4-mil clear plastic or Reemay garden fabric

5 Easy Steps

1. Before filling, dig out grass or weeds at bottom of new bed (get out all roots!). A garden fork and shovel work best
2. Add **Sandy Loam** (mix well with any existing soil at bottom of bed)
3. Add **Compost** : mix well with loam
4. Add **Manure** (well-aged): mix well with compost and loam
5. Add **Organic Fertilizers** (see Natural Fertilizers, pp. 14-17): mix well with above loam/compost/manure blend

Voila!

You should now have beautiful, fluffy, dark aerated soil that smells wonderfully rich

Note: Due to natural compaction and plant ingestion, each gardening season you will need to add perhaps 2-3 inches of compost (or other organic matter) to your raised-bed; add fertilizers as needed.

COMPANION PLANTING

One of gardening's joys is to discover ways that plants benefit each other when interplanted. A diversely planted vegetable garden intermixes crops, herbs & flowers. You can enhance the happy life of your vegetables & fruits by knowing what companions they enjoy sharing space with. Such "arranged marriages" are easy to integrate into your garden design.

Companion Planting: Strength in Diversity

Companion planting helps create a strong community of plants, the diversity of which has numerous benefits:

Pest Control
Certain plants repel or confuse insect & animal pests. Companion plants may also attract beneficial insects that aid in pollination or feed on insect pests.

Soil Enhancement
Certain plants add specific nutrients to the soil that are needed by surrounding plants (example: Legumes fixate nitrogen into the soil).

Weed Control
Beneficial interplantings can aid in keeping weeds down under larger plants or around fruit trees, vines, etc.

Erosion Control
Soil is stabilized by providing dense, water absorbant root structures. Soil is not left barren, unprotected.

Plant Protection & Support
Taller plants may protectively shade shorter neighbors from excess sun. Stronger plants can support weaker ones.

Plant Yield & Flavor
More yield is available by planting more intensively. Some plants improve the flavor of others.

Is It Necessary?

There are numerous tricks in creating a more productive and aesthetic garden. Companion planting is one technique. Why?

- You can cram more plants into a smaller space — plants that like each other and work to insure health & safety among neighbors.
- You can intermix herbs, flowers & vegetables, thereby creating more interest and edible harvest.
- You can thin interplantings to keep proper balance between growth, productivity & support

Companion planting mixes scientific fact, function & aesthetics. Try it and you won't turn back!

STEP 2:

Space-Efficient Root Growth

These combinations have root systems that will not compete with each other, thus root space is used efficiently.

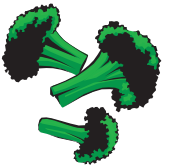
Beans	— carrots, celery, corn, squash
Corn	— lettuce, potatoes, squash
Kohlrabi	— beets
Leeks	— carrots
Lettuce	— carrots, onions, radishes
Melons	— radishes
Onions	— eggplants, peppers, radishes, spinach
Parsnips	— lettuce
Peas	— radishes or turnips
Chard	— cucumbers

Interplanting: 3 Easy Steps

STEP 1: Avoid Incompatible Plants

Certain plants just do not benefit each other. They emit growth-stunting chemicals or attract diseases in their neighbors. Don't plant these vegetables near each other:

DON'T PLANT TOMATOES near . . .



Cabbage Family: broccoli, cabbage, kale, cauliflower, kohl-rabi, brussel sprouts **(stunts growth)**

Potatoes (draws blight)

Corn (attracts corn earworm)

Beans, peas, legumes AVOID Onion, garlic shallots, chives (both stunt each others growth)

Beets AVOID Pole beans (both stunt each others growth)

Plant Space-Compatible Vegetables

Compatible Top-Growth

These varieties grow well together because they have above-ground growth patterns that don't interfer — high growers mixed with low growers.

Beans — celery, corn, squash, radishes, or staked tomatoes

Broccoli, Cauliflower & Cabbage — carrots, onions, trellised peas, carrots, onions, peppers, squash, tomatoes, corn

Leeks — carrots, parsley

Lettuce — carrots, onions, radishes

Melons — radishes, corn, cabbage

Onions — cabbage, carrots, eggplant, peppers, spinach

Peas (trellised) — broccoli, cauliflower, cabbage, turnips, lettuce, carrots, spinach, kohlrabi, radishes

Potatoes — corn or pumpkins (Combinations of potatoes and corn and pumpkins take lots of nutrients from the soil, so be careful!)

Step 3: Know Insect Repelling Herbs — this way

SPRING PLANTING

Most gardeners plant new seeds and young starts in Spring. It is possible to get a successful jump on the gardening season by following at least 5 strategies, as shown on these two pages. The result will be a quicker harvest while making the most of the frost-free growing days in your area.

STRATEGY #1

Know Dates of Last Frost

You should know if your area is susceptible to frost and when. A local garden center or County Extension Service (even garden club or fellow gardener) can tell you these two dates:

- **Last Frost Date in Spring**
- **First Frost Date in Fall**

Last Frost Dates vary greatly from place to place (or even from yard to yard). The following charts are a general guide for Spring. Always be prepared to protect your seeds and starts from harsh weather.

Very Tender

Plant at least 2 weeks or more **after** average last Spring frost date unless there is a clear warming trend earlier, or you live in southern climates.

Basil, Eggplant, Melons, Peppers, Squash, Cucumber, Lima Beans, Okra, Pumpkins

Tender Crops

Plant one week or so after date of last Spring frost. Be cautious, however, and be prepared to protect.

Beans, Sweet corn, Herbs, Tomatoes

Semi-Hardy

Plant as early as 2 weeks **before** average last frost date, or use your own garden records.

Cauliflower, Potatoes

Hardy Crops

Plant as soon as soil can be worked in Spring. In marginal weather conditions, protect with a cloche, light insulating fabric. Be creative!

Artichoke, Asparagus, Beets, Berries, Broccoli, Cabbage, Celery, Chard, Cover crops, Garlic, Kale, Herbs, Mustard, Onions, Parsnips, Peas, Herbs, Radishes, Rhubarb, Spinach, Perennial flowers

STRATEGY #2

Know Your Soil's Temperature for Seed Germination

Soil temperature must be above 40F for seeds to successfully germinate (or they may rot in the cool/moist soil). Direct seeding at higher temperatures will result in faster sprouting.

A soil thermometer (widely available) will give you an accurate reading. Use the following *minimum to maximum soil temperatures* as a guide for planting.

Range: 40-70F+
Onions, Parsnip, Spinach

Range: 50-80F+
Asparagus, Beets, Cabbage family, Carrot, Cauliflower, Celery, Chard, Lettuce, Parsley, Peas, Potatoes, Radishes, Turnips

Range: 60-85F+
Beans, Corn, Cucumber, Eggplant, Lima beans, Melons, Okra, Peppers Pumpkin, Squash, Zuchinni

STRATEGY #3

Have Good Drainage

Raised or mounded beds have excellent drainage. This allows them to warm up earlier in the Spring and stay warm later in the Fall.

Flat ground gardening may not have proper drainage. A proper solution is the addition of 2-3" compost/organic matter once a year. See Strategy #4

STRATEGY #4 Add Organic Matter

In Spring (or Fall, if desired)

1. Add 2-3 inches of compost, well-aged manure, or garden vegetable planting soil mix. *Note: remove any mulch from the soil first*
2. Add some natural fertilizers, if desired or necessary (see pp.14-17).
3. Mix into the soil well, 6-10 inches.

This is an important part of ***Soil Preparation*** (see pp. 12-13), especially in Spring when soil temperatures are cool.

Nitrogen and phosphorous are locked up in the soil, unavailable to plants, when the soil temperature is below 50F. Then, as the days get longer, the sun shines more, and the soil gradually warms up, the young plants will be able to take advantage of the soil nutrients as soon as they are released.

Mistake #1

Don't plant hot weather crops too soon, or you risk stunting them — Tomatoes, peppers, eggplant, beans, corn, squash, cucumber

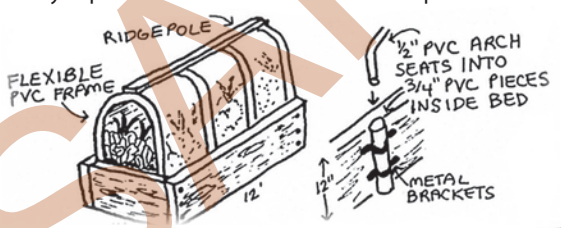
Mistake #2

Never walk directly on your garden beds, especially raised beds. This severely compacts the soil. Create beds no wider than 4-feet, for easy reach.

STRATEGY #5 Protect Your Plants

Cloche

Made from clear plastic or glass, a cloche easily protects seeds, starts & soil in a cold spell. Cloches can be bought, but the method below is useful for 4-foot wide wood raised or mounded beds. Use 8-foot lengths of 1/2" pvc pipes arched over bed, held securely in place and covered with 4-mil clear plastic.



Floating Row Cover

Reemay is a light, white, gauze-like fabric that has high insulation value. It is laid over seed beds or seedlings until warm weather arrives.
Each layer blocks 20% of the sun's rays but still allows water & air to pass through.
A sheet of light plastic can also be used.

Cold Frame

A simple wooden box with an old window hinged on top is a perfect miniature greenhouse with ventilation. Excellent for hardening-off young starts for a couple weeks before planting in garden bed.

Mistake #3

Don't plant seeds if the soil temperature is below 40F — they will not germinate. Direct-seeding at higher soil temperatures results in faster germination.

Mistake #4

Don't plant starts or seeds too soon if there is the likelihood of frost. Know frost dates for your area and have the means to protect young plants.

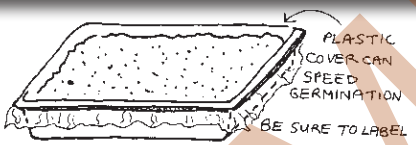
RAISING & PLANTING STARTS

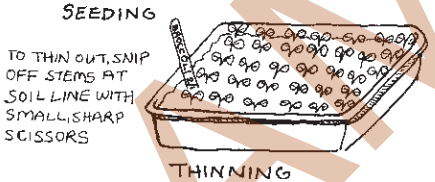
Many gardeners confidently raise their plants from seeds directly sown in the ground, or from purchased starts. You can also raise your own transplants (starts) indoors from seed, about 1-2 months before you expect to place them in your garden. Here are 7 valuable steps.

Step 1: *Containers*

Creatively use containers that drain well with holes in the bottom: small plastic tubs, cups or pots, egg or milk cartons, tin cans, aluminum or commercial planting trays. A plant should grow from seed to full transplant size without being root-bound.

- "Jiffy pellet" pots (at garden centers, 2x2-inch size)) are excellent for growing transplants. When ready, place the pot and its seedling in the ground to minimize transplant shock to the roots.
- Seedling too big for its pot? Transplant it right away or repot into larger container
- Peppers, eggplants, tomatoes, etc. can be grown in 1-gallon or larger containers until plants are quite large and ready to be transplanted





Step 2: *Sowing Seeds*

Use a sterile soil or non-soil mix (at garden centers) for high success rate of seed germination. Premoisten the soil mix.

1. Scatter seeds over the soil surface or in rows. Plant larger seeds one at a time. Cover seeds with soil mix.
2. If soil is premoistened before seeding and containers are covered with saran wrap or placed in a plastic bag, you may not need to water again until shoots emerge, then . . .
3. Remove plastic and place trays or pots in bright south or east facing window, or place under grow lights. Thin as necessary.

Step 3: *Temperature*

For germination of seeds, warm soil (75-80F) is best

For best plant growth after seeds sprout — Daytime: 68-70F; Nighttime: 52-60F

Step 4: *Light*

A sunny, south-facing window works fine in areas where the sun shines a lot. In regions with cloudy/rainy springs, transplants will be leggy and weak unless you try this:

1. Indoor grow lights (an expensive but efficient option), **OR**
2. Heated outdoor space such as greenhouse or "hotframe" (coldframe with electric heat), **OR**
3. Coldframe with Reemay or other protective fabric over plants. This may suffice for later planting or in milder climates

A simple coldframe. The hinged top is an old window. A perfect mini-greenhouse!

Step 5: *Watering*

- ***Before seeding, soil mix should be moist.*** Perlite, vermiculite or sphagnum peat moss added to the soil are excellent water-absorbing mediums *(Note: Soil mixes may already have these)*
- ***Use declorinated water*** by setting a jug of tap water out overnight without a lid; keep water at room temperature
- ***The right moisture level of the soil is critical.*** Too moist and seeds won't germinate, or seedlings can die from "damping-off", a fungus disease. So, while "moist", soil should also feel somewhat crumbly.
- Once up, ***plants may have to be watered every day***. Do not allow plants to dry out.

Step 6: *Fertilizing*

Indoor seedlings (starts).
When 2-4 true leaves appear, apply liquid fertilizer (1/2 normal strength) every 1-2 weeks to soil surface. Premixed liquid fertilizers are available at garden centers. Homemade compost tea is good, too.

Direct seeding or planting larger starts (store bought) in garden.
If you prepared the soil properly, you will not need to fertilize until sidedressing (see Sidedressing pp. 26-27).

Step 7: *Hardening Off*

At least 2 weeks before transplanting, starts need to be "hardened-off" because their protection indoors has made them too tender for the garden.

Put starts in a closed coldframe (insulated, if necessary) and open the lid gradually over time. This allows the plants to become strong and resilient for transplanting. *(Note: a greenhouse, cloche, or protected porch may also work)*

Planting New Starts & Seeds

Starts and seeds should be planted after soil is prepped and during early morning, late afternoon, or on a cloudy day — never in the heat of the day!

Planting starts (should have 2-4 true leaves)

1. Water the start before transplanting (to keep rootball intact)
2. Scoop out soil in garden bed (with trowel) about twice the size and depth of rootball, then place start (or Jiffy-potted seedling), firm soil around it and water
3. *Option: Fertilize* (Step 6 above) if soil has not been amended with fertilizer
4. Keep newly planted start out of direct sun for at least 24 hrs and keep soil moist!

Direct planting of seeds: broadcast or plant in rows; poke seeds in ground or scatter; cover with 1/4 - 1-inch of soil (see seed packet); keep soil moist; may protect with garden fabric until seedlings emerge (or have 2-4 true leaves)

Vegetables to Transplant

(approx. weeks after sowing seed indoors)

Broccoli	5-7 wks	Lettuce	5-7
Brussel Sprouts	5-7	Leeks	8-10
Cabbages	5-7	Onion	8-10
Cauliflower	5-7	Parsley	8-10
Celery	7-12	Peppers	6-8
Collards	5-7	Tomatoes	6-8
Eggplant	6-8		

Transplant these plants without disturbing roots. Best if started in individual pots:

Cantaloupe	3-4 wks
Corn	4-6
Cucumbers	3-4
Squashes	3-4
Watermelon	5-7

Succession Planting

Want to extend your harvest of a particular crop? Use this gardening technique! **First**, save some unplanted space in your vegetable patch — this is important. **Second**, plant the same crop more than once (2-4 weeks apart) in those unplanted spaces. Use saved extra seeds, or buy new starts. This technique is great for planting peas, beans, greens (spinach, lettuce, chard, arugala, etc.). Experiment!

The Nutrition Connection

Reduce Cancer Risk

The National Cancer Institute estimates that about 30-60% of all cancers are linked with diet. Many medical practitioners suggest that persons with high fruit & vegetable intake have about half the risk of cancer than those with low intakes. Makes you want to garden!

The American Cancer Society's 10-step program suggests several strategies directly related to what you can grow and harvest from your garden (or benefit from good produce selection in a store).

You can also reduce cancer risk by eating less fats & salts, minimizing alcohol, drugs & smoking, protecting your skin from the sun, and making a regular commitment to exercise & weight control.

Strategy 1: Cruciferous vegetables (cabbage family)
Plant broccoli, cauliflower, brussels sprouts, all cabbages & kale — all exceptionally nutritious vegetables

Strategy 2: Choose foods rich in vitamin A
Use this rule of thumb: ***the brighter the orange or darker the green, the higher the vitamin A content.*** Plant carrots, squash, a peach or apricot tree, leafy vegetables such as chard, spinach, collards, kale, mustard greens, dark loose-leaf lettuces, parsley, endive, and of course, broccoli

Strategy 3: Choose foods with vitamin C
Grow fresh fruits & vegetables such as grapefruit, kiwi, cantaloupe, oranges, strawberries, red & green peppers, broccoli, tomatoes, winter squash

Strategy 4: Add more high-fiber foods
Include in your diet more fruits & vegetables including peaches, strawberries, potatoes, spinach, tomatoes, greens

Cancer Threats	Eat More
Colon & Prostrate	cruciferous vegetables, carrots, & soybean products
Breast	as above + items high in vitamin C
Lung	dark green leafy & cruciferous vegies, yellow or orange produce, especially carrots
Bladder	fruits & vegetables in general, especially carrots
Throat types	all fruits & vegetables
Thyroid	cruciferous vegetables (cabbage family)
Pancreatic	citrus fruit, tomatoes, legumes

Note: As always, seek the advice of a medical professional if you intend to make a significant change in your diet and/or exercise patterns

The Basics of Nutrition

A garden is a nutritious cornucopia. It can aid immensely in the shaping of your diet, allowing optimal ingestion of beneficial vitamins, minerals, fiber, protein and water, while supplying lower amounts of carbohydrates, calories, fat, and sodium. Dollar for dollar, pound for pound, your garden is a valuable investment in your health!

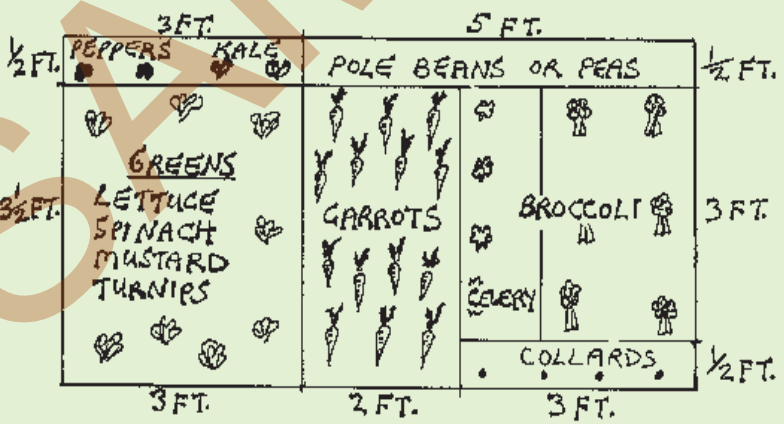
The Power of Nutrients

The trillions of cells of your body are formed directly from the nutrients in the foods you eat daily. The term ***nutrients*** describes the chemical elements & compounds in food that aid in cell-building and use of energy. Cell-building materials come from protein, carbohydrates & minerals. Energy-giving components are measured in calories and are obtained from carbohydrates & fat (if these are in short supply, the body can use protein for energy). If too few calories are available, your body may not have enough energy to function properly; too many and the excess is stored as fat.

Most nutrients, acting in chemical enzymes, have a variety of specific tasks, yet they work together in many different combinations to handle the work of the body. A balanced diet assures an available supply of all nutrients and other food components, including fiber.

The "Mini-Garden"

Rich in Vit. A & C, Calcium & Iron



Garden for 1-2 people

What to Plant

4x8 ft (32 sq ft)

- Beans or peas, 5 ft double row on trellis
- Broccoli, 6 plants
- Greens, 10 1/2 sq ft
- Celery, 4 plants
- Carrots, 7 sq ft
- Kale, 2 plants
- Peppers, 2 plants
- Collards , 4 plants

NUTRITIONAL INFORMATION *		PLANT
Serving size: 5 spears (3.5 oz)	Calories: 18	**Asparagus**
Vit. A: 10% RDA	Vit. C: 10 % RDA	
Fiber: 2 grams	Protein: 2 g	
Serving size: 1 medium stalk (5.5 oz)	Calories: 40	**Broccoli**
Vit. A: 50% RDA	Vit. C: 240% RDA	
Fiber: 5 grams	Protein: 5 g	
Calcium: 6% RDA	Iron: 2% RDA	
Serving size: 3/4 cup (3 oz)	Calories: 14	**Bean** (green)
Vit. A: 2% RDA	Vit. C: 8% RDA	
Fiber: 3 grams	Protein: 1 g	
Calcium: 4% RDA		
Serving size: 4 oz	Calories: 37	**Beet**
Vit. A: 110% RDA	Vit. C: 33% RDA	
Fiber: 1 gram	Protein: 1 g	
Serving size: 1/12 medium head (3 oz)	Calories: 18	**Cabbage**
Vit. A: minimal	Vit. C: 70 % RDA	
Fiber: 2 grams	Protein: 1 g	
Calcium: 4% RDA		
Serving size: medium 7" long (3 oz)	Calories: 40	**Carrots**
Vit. A: 300% RDA	Vit. C: 8% RDA	
Fiber: 1 gram	Protein: 1 g	
Calcium: 2% RDA		
Serving size: 1/6 medium head (3 oz)	Calories: 18	**Cauliflower**
Vit. A: minimal	Vit. C: 110% RDA	
Fiber: 2 grams	Protein: 2 g	
Calcium: 2% RDA	Iron: 2% RDA	
Serving size: 2 medium stalks (4 oz)	Calories: 20	**Celery**
Vit. A: minimal	Vit. C: 15% RDA	
Fiber: 2 grams	Protein: 1 g	
Calcium: 4% RDA		
Serving size: 1/2 cup cooked	Calories: 20	**Collards**
Vit. A: 300% RDA	Vit. C: 200% RDA	
Fiber: 2 grams	Protein: 2 g	
Calcium: 13% RDA		
Serving size: 1 medium ear (3 oz)	Calories: 75	**Corn**
Vit. A: 5% RDA	Vit. C: 10% RDA	
Fiber: 1 gram	Protein: 3 g	
	Iron: 3% RDA	

***Note: Sources from USDA & other nutritional publications. Percent Daily Value based on 2,000 calorie daily diet. As a rule, fresh picked items have highest values**

BEST TIME TO HARVEST	STORAGE & EATING TIPS
When shoots are 6-12" high before tips open up. Upper tender part will easily snap off of lower stalk. Green spears most nutritious	**Refrigerate.** Wrap in damp cloth and eat within one week. Good in soups, raw in salads, or lightly steamed on low heat with tips up to preserve vitamins
Cut head when tight & fully formed but before flowering. Side shoots will develop after first cutting which may continue to be harvested before they flower	**Refrigerate.** Eat as soon as possible and never allow heads to yellow. Best eaten with proteins, raw or steamed on low heat
Snap variety: choose bright, fresh, tender young pods with immature seeds. They should snap easily. Keep vines picked for better production **Shell variety:** let dry on bush & shell for winter.	**Refrigerate.** Eat while still crisp. Over-cooking destroys food value Store in tightly sealed container in cool place. Depending on variety, use in soups, salads, dips, alone, etc.
Harvest nutrient-rich greens repeatedly at any size (roots will be smaller) or eat whole plant. Beets left in ground too long become tough	**Refrigerate or Root Cellar:** roots only **Overwinter** in ground in temperate climates. Steam roots & greens or grate in salads
When heads are good sized & compact. Don't let leaves become wilted-looking	**Refrigerate.** Use/eat as soon after cutting as possible as air exposure kills vitamin C. Eat raw in salad or lightly steam on low heat in stainless steel pan with tight lid to retain minerals & minimize gas-formation
Can be eaten at any stage, but for highest nutrient content pull at full maturity but before they get tough and skin cracks	**Refrigerate, RootCellar, or Overwinter** in ground. Carrots keep very well but seem to retain their crunch & vitality best in a sealed container or plastic bag in the refrigerator. Don't let them get limp. Raw carrots or juice are best. Steam until slightly firm, not soft
Best when head is creamy white, firm, heavy, & compact with outer leaves still fresh & green. When overripe head has a granular or speckled appearance and begins to separate	**Refrigerate or Overwinter** in ground. Can last a week or two but limpness & brown spots are a sign of decline. Great raw in salads, with dips, or in soup. Steam for a few minutes, but don't let get soft
Best celery is of medium length, density & thickness; stalks should snap easily. Pithy or stringy celery probably has lower vitamin & mineral content, and once the seed stem is forming, tastes bitter	**Refrigerate or Overwinter** in ground. Highly perishable. Best raw in salad and with other vegetables. Quickly steam in pan with tight lid. A good balance to foods heavy in starches or high in protein. Raw celery leaves are mineral rich
When leaves are young or full and intense color of green	**Refrigerate.** Use promptly either lightly steamed in soups or stir frys, or raw in salads. Good blended for baby food or special diets
When husks are fresh & green but silks have browned. Pull back husks and check for well-filled & tight-kernaled cob. Kernals should be plump & juicy, filled with thick white liquid. Test by penetrating a kernal with fingernail	**Refrigerate.** Steam husked ears in minimal water or cut corn kernals from ear. The sooner eaten the sweeter. Avoid yellowed husks (old or damaged), for the kernals will be tough and starchy-tasting.

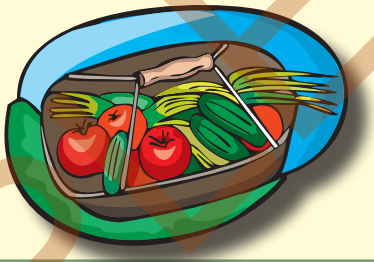
The Nutrition Connection

The Protein Boost

Protein (as well as carbohydrates & fat) is needed for your body to use as energy (measured as calories). Daily protein requirements are calculated as a percentage of total calories consumed each day. This recommended percentage range is 5-8%. Check out the protein wallop of your garden in the chart below! It depicts percentage of protein *per calorie* for each item. You can find the calories per serving for various fruits and vegetables in the Nutrition Charts, pp. 32-39.

Percent of Protein Per Calorie

Vegetables		Fruits	
Spinach	49%	Lemon	16%
Broccoli	47%	Cantaloupe	9%
Cauliflower	40%	Orange	8%
Mushrooms	38%	Grape	8%
Parsley	34%	Peach	6%
Lettuce	34%	Pear	5%
Green peas	30%	Banana	5%
Zucchini	28%		
Green beans	26%	**Nuts & Seeds**	
Cucumbers	24%	Peanuts	18%
Celery	21%	Sunflower	17%
Tomatoes	18%	Walnuts	13%
Onions	16%	Almonds	12%
Potatoes	11%		
Legumes		**Grains**	
Soy beans	43%	Rye	20%
Lentils	29%	Wheat	17%
Split peas	28%	Oatmeal	16%
Kidney bean	26%	Buckwheat	15%
Navy bean	26%	Barley	11%
Chickpeas	23%	Brown Rice	8%



IMPORTANT NUTRITION TIP

All vegetables containing protein are lacking in one or more of the essential amino acids the body needs.

The missing amino acids can be provided by accompanying the vegetables with seeds, nuts, grains, dairy or meat (including substitutes).

Starch & Fiber: Healthy Weight Control

Foods rich in complex carbohydrates (starches)

Your garden is a ready made weight control clinic: vegetables and fruits contain1/2 the number of calories per ounce of fats, and more nutrients than simple carbohydrates, such as sugars.

Need More Fiber?

Fiber content of plants aid in digestion, stimulating enzyme activity in the stomach & intestines. This roughage also aids in stool development. • **Plant lots of greens, carrots, celery, and berries with edible seeds (raspberry & strawberry). Additionally, plant fruit trees.**

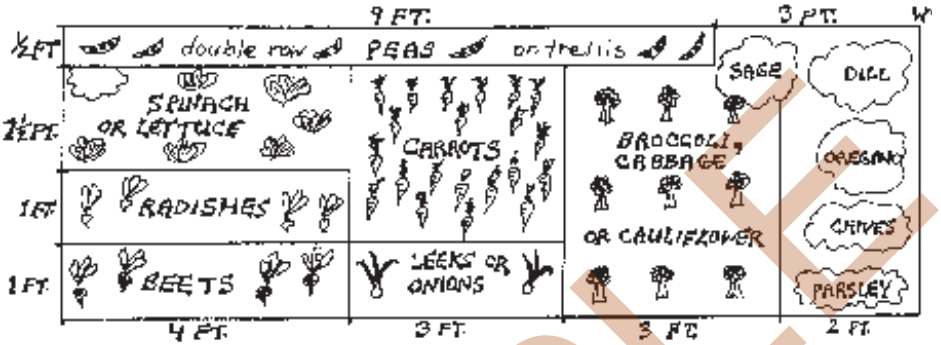
Need More vit. B for Energy?

The B vitamins help body cells use food energy, critical to any diet & exercise plan. **Plant more beans, peas, or dark greens like spinach & romaine lettuce.**

The High Nutrition Sampler Garden

- 2 4x12 ft raised beds (approx. 100 sq ft)
- 1-3 person family
- Intensive planting
- Companion planting

Early Spring (Plant 1st Garden Bed for late Spring early Summer harvest))



Vegetables

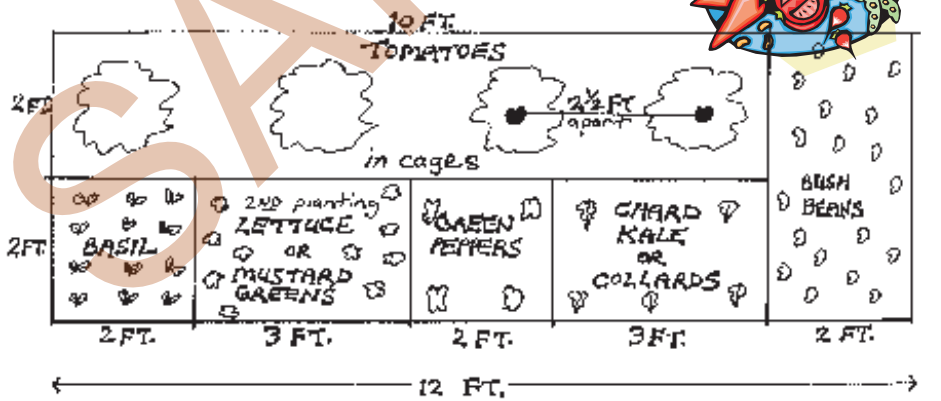
(high in Vitamins A & C, Calcium, Iron, fiber)
Spinach, lettuce, carrots, radishes, beets, onions (or leeks), broccoli (and/or cabbage, cauliflower), sweet peas (trellised)

Herbs

(for culinary use and for insect pest control)
Sage, dill, oregano, chives, parsley, rosemary. ***Note: Perennial herbs can be aggressive, so keep well-controlled.***

Late Spring - Early Summer

(Plant 2nd Garden Bed for late Summer and Fall harvest)



Vegetables

Tomatoes, green peppers (or red, hot, chili), chard (or kale, collards), lettuce (or other greens), bush beans, basil, nasturtiums

Herbs

Basil (great for flavoring, Italian cooking, making pesto - yummm!)

BENEFICIAL INSECTS

Your garden is a natural host to many insects, good and problematic. Beneficial insects are critical to the concept of Integrated Pest Management (IPM), where key plants (flowers, herbs, vegetables, grasses) encourage good bugs to happily live & protect other plants.

The insects you want in your garden are **Pollinators** (bees, butterflies), **Predators** (direct eaters) and **Parasites** (lay eggs in prey).

10 Key Insects in Your Garden

Syrphids (hover flies) love aphids

Predacious Ground Beetle In both larval & adult stages, feeds at night on insects like cutworms, maggots, snails & slugs

Spiders (not actually in the insect family) prey on many insect pests

Minute Pirate Bug loves thrips, small aphids, spider mites, various insect eggs, & small larvae

Parasitic Wasps lay eggs in the egg, larval, or adult forms of pests, killing them

Lacewings Larvae feed on aphids, scale, small catterpillars, moth eggs, & mealybugs

Lady Beetles (ladybugs) eat many types of insects & aphids

Flies The larval stage parasitizes & kills insects; adults attach to the larvae of butterflies, moths, caterpillars, etc. laying eggs in their hosts

Where is #9 & #10?

4 Ways to Attract Beneficials to Your Garden

Step 1	**Plant Flowers, Herbs, Grains, Grasses**
Step 2	**Use a Beneficial Bug Food** (if needed)
Step 3	**Plant a Hedgerow**
Step 4	**Practice Companion Planting** (pp. 16-18)

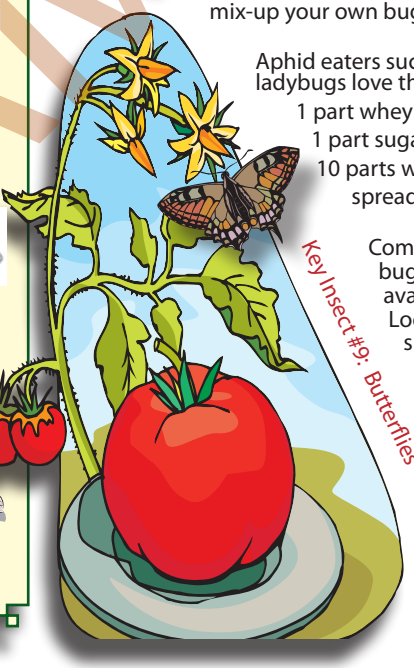
Bug Food for Beneficials

To attract or maintain high levels of beneficial bugs when nectar, pollen, or prey are not very abundant, you can mix-up your own bug food!

Aphid eaters such as lacewings & ladybugs love this brew:

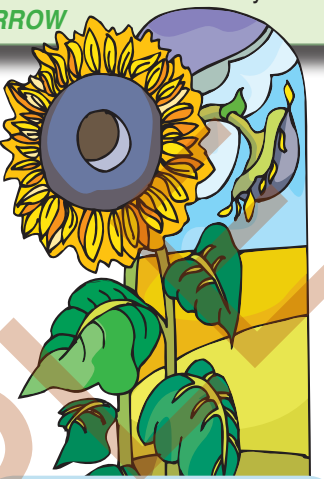
1 part whey or brewers yeast
1 part sugar
10 parts water (spray or spread the mixture)

Commercially-made bug foods are also available. Look for names such as "Bug Chow" and "Bug Pro," among others



PLANTS BENEFICIAL INSECTS LOVE

Alfalfa • ***ANISE*** • Amaranth • **Buckwheat** • *CARAWAY* • Clover • **Corn** • ***DANDELION*** • *Dill* • **Fennel** • LEMON BALM • ***Goldenrod*** • Mustard • **Parsley** • *Queen Anne's Lace* • Tansy • Stinging Nettle • **SUNFLOWERS** • ***YARROW***

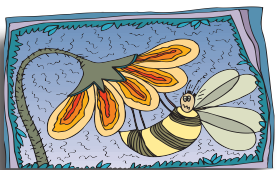


Plant Nectar-Rich Flowers

The importance of flowers in the garden to attract beneficial insects cannot be overstated. Here's a few reasons.

1. Many predators/parasites need **nectar & pollen** to supplement their diet of insects
2. Pollen & nectar plants are sources for **carbohydrates, amino acids & other key compounds** — survival needs for insects

Key Insect #10: Bees



3. **Few flowering plants = fewer beneficial insects**. Even purchased insects, like ladybugs, will fly away without flowers around
4. **Flowering weeds & wildflowers** attract more beneficial insects than fancy hybrid flowers
5. **Wildflowers among fruit trees** attract enough beneficial parasites to destroy up to 18X the number of munching tent caterpillars and codling moths
6. **Notice where beneficials feed**. Consider protecting these plants and/or planting more in a hedgerow on the borders of the garden

Nectar-Rich Flowers

The Carrot Family
Celery, coriander, parsnips, dill, Queen Anne's Lace

The Daisy Family
Black-eyed Susans, coreopsis, asters, goldenrod, chamomile, bachelor's buttons, yarrow, Joe-pye weed, marigolds

Others to Ponder
Milkweed, buckwheat, catnip, & crops that have flowered (like broccoli, mustard, radish, asparagus)

Plant a Hedgerow

Not everything in a garden needs to be well organized. A "wild" border is one of the very best ways to attract beneficial insects (and birds & butterflies), giving them food, thermal protection, and a good home to raise a family.

- A hedgerow is a permanently planted strip of land left wild. It usually is at least 3-ft wide and any length
- It can be planted around the border or fence of a garden plot. A nearby water source, like a pond, is ideal
- It may contain a variety of grasses, clovers & wildflowers, and should include at least a few of the specific plants listed on this page
- It creates a permanent safe habitat for a number of insects, many of who will be beneficial