

GROWING YOUR OWN VEGETABLES at HOME



Why Grow Your Own Vegetables?

- 1. Variety, variety, variety!
- 2. Freshness
- 3. Taste
- 4. Exclusiveness
- 5. Pesticide-free (If you want: An aphid infestation will test your resolve)
- 6. Farm Monoculture vs. Garden Polyculture
- 7. Self Satisfaction/Self-Reliance
- 8. Saves Money (Maybe)
- 9. Productive Exercise

What's Special About Growing Your Vegetables in the Coachella Valley??

(A plant is first and foremost, always and forever: A light-eating machine!)

- 1. Long Growing Season:
 - a) 330 frost free days
 - b) 93% possible sunshine hours
- 2. Manageable Soils
- 3. Ample High Quality Water
- 4. Minimum fungal plant diseases
- 5. Natural Presence of Beneficial Insects

What Do You Need to Know?

1. **What Vegetables can I grow here? And When?**
2. Where can I get my plant material?
3. What special tools do I need?
4. **Planning Your Garden**
5. **Soil Preparation**
6. Planting a seed or a transplant
6. Mulching
7. **Irrigation**
8. Fertilization
9. Pest Control
10. Harvest and Enjoy

What Vegetables Can You Grow in the Coachella Valley? **And When??**

- 1. Check out the county Crop Report for the Coachella Valley in CVWD's Annual Report.
- 2. The Perennials
- 3. Cool Season Vegetables
- 4. Warm Season Vegetables
- 5. The Odd Balls

Crop Report

(Covering the reporting period January - December 2016)

Crop production on Coachella Valley land irrigated with Colorado River water

Value of year's production: \$816,182,320

Total acreage irrigated (includes double cropping & irrigated but not harvested): 76,345

Average gross value per acre: \$10,691

Crop	Acreage*	Yield in tons	Value per acre**	Total value
Fruit	27,735	401,712	\$14,825	\$411,172,578
Dates	7,964	19,114	\$5,040	\$40,138,560
Figs	177	1,487	\$8,400	\$1,486,800
Grapes - (table)	7,379	60,766	\$20,587	\$151,915,162
Grapefruit	511	7,167	\$8,291	\$4,236,829
Lemons & Limes	3,927	64,913	\$26,753	\$105,057,068
Mangos	117	954	\$15,485	\$1,811,745
Olives	86	765	\$13,331	\$1,146,474
Oranges & Tangerines	1,368	13,571	\$8,504	\$11,633,770
Peaches	16	79	\$14,400	\$230,400
Strawberries	147	3,263	\$42,550	\$6,254,850
Watermelon	6,043	229,634	\$14,440	\$87,260,920
Vegetables	27,145	522,248	\$10,959	\$297,473,205
Artichokes	850	6,833	\$10,862	\$9,233,091
Bok Choy	353	4,368	\$7,875	\$2,779,875
Broccoli	969	5,939	\$6,465	\$6,264,866
Cabbage	327	2,435	\$5,700	\$1,863,900
Carrots	4,777	162,418	\$5,950	\$28,423,150
Cauliflower	1,417	10,331	\$8,952	\$12,685,097
Celery	757	16,470	\$10,458	\$7,916,785
Eggplant	314	6,905	\$27,224	\$8,548,217
Green Beans	760	3,437	\$9,312	\$7,077,188
Kale	94	2,461	\$9,350	\$878,900
Herbs (basil & parsley)	353	988	\$4,000	\$1,412,000
Lettuce	3,217	44,531	\$9,674	\$31,121,033
Okra	643	2,668	\$4,150	\$2,668,450
Onions (dry)	251	7,097	\$11,876	\$2,980,751
Onions (green)	263	5,136	\$14,500	\$3,668,500
Oriental Vegetables	1,050	11,025	\$7,875	\$8,268,750
Peppers (bell)	5,288	110,255	\$23,727	\$125,469,962
Peppers (chili)	265	2,397	16,637	\$4,408,744
Potatoes	876	9,951	\$3,510	\$3,074,970
Radish	101	589	\$7,992	\$807,192
Spice	1,138	3,186	\$4,000	\$4,552,000
Spinach	504	6,925	\$13,786	\$6,948,043
Squash	150	60,000	\$4,200	\$630,000
Sugar Beets	235	10,251	\$1,991	\$467,842
Sweet Corn	1,883	19,277	\$6,120	\$11,523,489
Tomatoes	320	6,355	\$11,876	\$3,800,410



The Perennials

Artichokes, Asparagus and Rhubarb

Edible Ornamentals

Plant once: Theoretically lasts forever, but here only asparagus can make it through our summers. Artichokes and Rhubarb should be considered cool season annuals.

Bermuda Grass often invades asparagus beds

Aphids love artichokes.

Characteristics of Cool Season Vegetables

1. Frost Tolerant
2. Harvest a root, stalk, leaf or an immature inflorescence (Flower)
3. Shorter growing season (35-75 days)
4. Plant between September – February
5. These are the vegetables your mother made you eat.

Of Additional Interest: Sulk Time

“Sulk Time” As Fall approaches winter, the daylight period shrinks, temperatures drop and fall annual crops descend into a no-growth “funk” period. This is a natural response to diminishing sunlight and extra water and/or fertilizer do not help the situation. The cure is the passage of time and the detection of increasing daylight and rising temperatures: A couple weeks after the December 21st winter Solstice.

Of Additional Interest: “Bolting”

“Bolting” The tendency for a plant to change its internal growth physiology from expansion to reproduction and produce a flower stalk before it dies from anticipated lethal temperatures. The plant then becomes immediately bitterly inedible.

Your January/February vegetable plantings should be a “Slo-Bolt” variety and when in doubt whether to harvest a Spring cool-season vegetable or not? Harvest it?

Plants affected Annual vegetables such as lettuce, spinach, and biennial vegetables that as onions, leeks, carrots, fennel and some of the cabbage family



Vegetable Root Crops

Beets, carrots, onions, parsnips, radish, rutabaga, turnip, etc.

Highest yield per square foot of any other grown vegetable



Celery

The stalk crop

Needs to be “blanched” near maturity by piling up soil around the base of the plant and loosely tying the stalks closer together to cut off sunlight.



The Leaf Crops

Vitamin Factories: Lettuce, Spinach, Swiss Chard, etc.

Head lettuce does not head up well here (Light soils?)



The Cole Crops

Broccoli, Cabbage, Cauliflower*, Brussels Sprouts, Kohlrabi and Kale

Big Plants: Heavy Feeders. Pre-Plant N-P-K (Complete fertilizer) + 1-2 side-dressings of Nitrogen.

*Needs to be blanched by covering with outer leaves

The Cool-Season “Legume” Crop

Legumes are members of a family of plants that have formed a symbiotic relationship with a soil bacteria who lives in the roots and breathes in soil nitrogen and gives it to the plant in return for the plant’s photosynthetic sugar.

There are many legume plants including alfalfa, clover, mesquite trees, but in the vegetable family there are the cool season peas and the warm season beans. These plants do not require nitrogen fertilizer. You can buy inoculant and coat your seed with it before planting.

Cool Season Legumes: Garden Peas (Can be bush peas or pole peas)

Garden Peas



Innoculant



Burpee Booster for Peas and Beans

SOIL INOCULANT FOR BEANS, LIMA BEANS AND PEAS
INCREASES CROP YIELDS AND IMPROVES PLANT
GROWTH.

Burpee Booster for Peas and Beans enables roots of peas, lima beans and lima beans to convert and utilize free atmospheric nitrogen. You'll increase your crop yields and improve plant growth.

TO USE: Make furrow and sow bean, lima bean or pea seeds. Sprinkle the dry granules liberally over the seeds in the furrow. Cover seeds with soil as directed on the seed packet. Water generously.

This organic granular Booster contains millions of live nitrogen-fixing bacteria. Store in refrigerator or other cool place. Works effectively on seeds treated with fungicide, or untreated. When using vegetable fertilizer on your beans and peas, follow application rate recommended on package.

NOTE: This is not a fertilizer. Not for human consumption.

BURPEE.

Characteristics of Warm Season Vegetables

1. Frost Sensitive
2. Harvest a Fruit
3. Longer growing season (60-124 days)
4. Plant between August-September +
February-March
5. These are the vegetables you wanted to
eat.

Of Additional Interest: “Pollen Mortality”

“Pollen Mortality” As the temperatures begin to routinely exceed 105 degrees F, pollen begins to die and without pollination the plant flowers cannot produce fruit. The plant looks healthy and vigorous, produces flowers, but no fruit develops. This is a natural response to high temperatures and extra water and/or fertilizer does not enable the plant to bear fruit.

The cure is time and the detection of decreasing temperature, which will allow the plant flower to produce again: IF, it survives the summer.



The Solanaceous Fruits

Tomatoes, Peppers and Eggplant.

Tomatoes can be determinate (Bush) or Indeterminate (Pole)

Often transplanted, after self-grown from seed.



The Vine Crops

Melons, Squash (Winter and Summer), Cucumber and Pumpkins

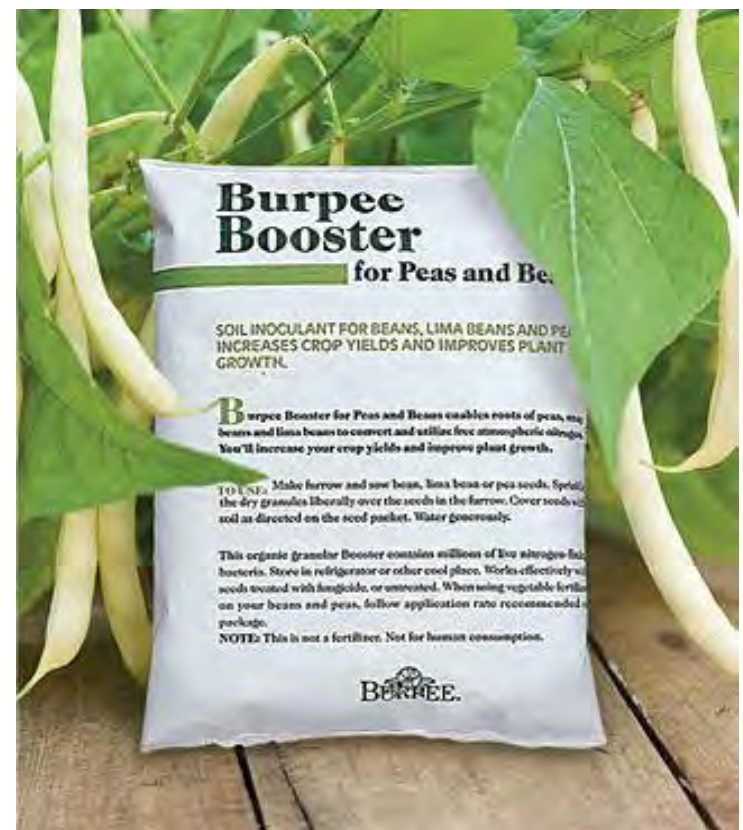
Space Takers: Train, trellis or grow midgets

Warm Season Legumes: Garden Beans (Bush/Pole)

Garden Beans



Innoculant



The Warm Season Oddballs

**Sweet Corn: For good pollination,
Plant in a block, not a single row**



**Okra: Goes all through the
summer**



Where do I get my plant material?

1. Box stores and nurseries, but the selection is very limited and both transplants and seeds are often treated with systemic insecticides.
2. Instead: Use online seed companies as an almost in-exhaustable selection of open-pollinated, heirloom, non-GMO and non-treated seed: For instance: Johnny's Selected Seeds, Baker Creek and Heirloom Seeds
3. For transplantable veggies, get a seeding growth kit from a box store and grow your own.

What Special Tools Are Helpful?

- Spading fork - Mix soil amendments into the soil
- Seedling grow kit - Grow transplants from seed
- Planting Stick – seed planting aid.
- Bulb Planter – Makes planting hole for transplants.
- Knee Pad – Takes the pain out of prolonged kneeling.
- Pole and Hand Hula Hoe + file = Best weeders
- Maximum-Minimum Thermometer - Frost
- Soil Thermometer – Helps in seed germination

Planning Your Garden

It really helps you have a rewarding experience if you:

Do the Paperwork:

1. What can you grow now? (See Low-Desert Planting & Harvest Calendar handout)
2. Where are you going to put them?
Draw a scaled map (See sample map handout)?
3. Practice Succession Planting (Days to Maturity)
(See Early Sunglow example handout)
4. Plot your own Planting & Harvest Calendar
(See example handout for Palm Desert)
5. Keep your map and practice crop rotation
for next growing season.
6. Consider Companion Planting (See chart handout)

CV Garden Soil Preparation Recipe

1. Locate a good site: Full sun + close proximity to an ample water supply. Don't have a good site?
Try growing vegetables in containers
2. Stake the 4 corners
3. Pre-Irrigate and check for good drainage.
4. Remove noxious weeds
5. Top dress the following:
 - a) 2" of organic soil amendment
 - b) A Complete (N-P-K) fertilizer*
 - c) Soil Sulfur* (To lower the Ph)
 - d) A Micronutrient fertilizer* with iron and zinc
I like Seaweed Extract
6. Mix into soil with a spading fork or a rototiller

* As per label recommendations.

Mixing Soil Amendment into the Soil

Using a spading fork to mix soil amendments into the soil.



The finished product ready for planting



Planting a Seed or Transplant

Seeds: Make and use a Planting Stick

Label your rows

Plant the thinning distance

Transplants: Upstart + Bulb Planter

Planting Seeds and Transplants



Planting Seeds



- Don't do this. Instead plant the thinning distance: If the package says "Plant your seed every 2" and then thin to every 4" once the seedlings emerge. Just plant the 4" thinning distance and replant any gaps.

Transplanting

Transplant Fertilizer



For making the planting hole



Mulching



- Conserves water, adds organic matter to soil, smothers weeds, food for earthworms, etc.
- Use straw, not hay which contains weed seeds.
- Cools soil which is a plus in the summer, but in the winter keeps the soil temperature from warming and re-radiating heat for frost protection.

Irrigation

Very Difficult to be efficient because of polyculture, changing weather and changing plant size.

Therefore irrigate the garden soil, not the individual plants.

When the soil surface begins to look like it is drying, out grab a handful of soil from the top 2" and try to squeeze it into a ball. If you can form a ball and roll it around the palm of your hand without crumbling, you are OK. If you can't, time to irrigate.

How long? Do a simple can test by placing a few straight sided cans and run your sprinklers until one inch of water is caught in all cans. Now you know how long to run your sprinklers to put down 1" of water.



Catch-Can Test Container

Run your sprinklers until a depth of 1" is caught and record the time.

Put down 1" of water down per irrigation.

If your plants should any signs of stress (droopy , curled or wilted leaves), irrigate immediately.

Fertilization

1. Your soil preparation recipe should be sufficient to grow all of your vegetables to maturity except for sweet corn and your “Heavy Feeders” who would appreciate a mid-season side dress of nitrogen fertilizer banded in-between the rows.
2. If, however, you should see signs of nutrient deficiency (yellowing leaves), side-dress or foliar feed right away.



Side Dressing

1. Make a shallow furrow about 6-8" from the base of the plant.
2. Apply the fertilizer in a strip as per label directions
3. Re-fill the furrow with the disturbed soil
4. Water it in.



Foliar Feeding with a hose sprayer

1. Follow the fertilizer container directions.

Pest Control I. (Insects)

This is a whole course in itself.

The main insects that I deal with here are caterpillars –especially the Tomato Hornworm – and aphids.

The tomato hornworm and other caterpillars are best dealt with by putting down a commercial caterpillar disease product (BT: bacillus thuringiensis) like ‘Dipel’.

Aphids are best dealt with by spraying with an insecticidal soap spray like Safer’s Insecticidal Soap

Pest Control II. (Diseases)

This is also a whole course in itself.

Generally, by the time a vegetable disease reveals its symptoms, it is too late to save the plant.

The best response is to immediately isolate the sick plant by pulling it, placing it in a paper bag and putting it in the trash. Don't leave it in the garden.

Remember where the disease manifested itself and plant a different species there next time:

Like: follow tomatoes with carrots where the tomatoes were growing!

Harvest Tip

Harvest your crop when it looks like the ones you buy in the store.

QUESTIONS ?

Thank You!

