COLORADO
MASTER GARDENER

Getting Your Vegetable Garden Started

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EXTENSION

Overview Questions

- How many of you consider yourself beginner vegetable gardeners?
- How many of you are native to Colorado or the area where you now live?
- How many of you have space for an 15’x15’ garden?

Overview Questions

How many of you will have a garden this year?

Gardening Goals

Maximize time

Nutritious food

Conversation

Continue traditions

Space utilization

Fresh air

Environmentally friendly

Food security

How Much Should I Grow?

- How many mouths am I feeding?
- What does my calendar look like this summer and fall?
- Do I have help?
- Do I have the ability to store food?
- Am I comfortable with food preservation?
- Do I have the ability to plant an extra row?

YEAR	LAST FROST	FIRST FROST	SEASON LENGTH
2011	31-May	10-Oct	132
2012	30-May	7-Oct	130
2013	1-Jun	28-Sep	119
2014	15-Jun	3-Oct	110
2015	20-May	3-Oct	136
2016	28-May	16-Sep	111
2017	14-Jun	24-Sep	102
2018	17-May	27-Sep	133
2019	23-Jun	22-Sep	91
2020	22-May	29-Sep	130
2021	24-May	11-Oct	140
AVERAGE	31-May	2-Oct	121

Frost Probability and Growing Season Length

		Probability last SPRING frost will be before			Probability first FALL frost will be before			Probability growing season will be less than ____ days		
		90%	50%	10%	10%	50%	90%	10%	50%	90%
Yellow Jacket	32° threshold	May 8	May 25	June 10	Sept 22	Oct 8	Oct 23	112	136	160
	28° threshold	Apr 21	May 5	May 19	Sept 29	Oct 17	Nov 4	140	165	191
	24° threshold	Apr 1	Apr 20	May 10	Oct 9	Oct 26	Nov 13	163	189	215
Cortez	32° threshold	May 10	May 26	June 11	Sept 12	Sept 27	Oct 12	107	124	141
	28° threshold	Apr 26	May 7	May 18	Sept 25	Oct 12	Oct 29	136	158	181
	24° threshold	Apr 12	Apr 26	May 10	Oct 4	Oct 20	Nov 5	157	177	198
Mancos	32° threshold	May 21	June 4	June 18	Sept 15	Sept 29	Oct 13	93	117	141
	28° threshold	Apr 25	May 13	May 31	Sept 17	Oct 2	Oct 17	115	142	169
	24° threshold	Apr 16	Apr 25	May 4	Oct 60	Oct 17	Oct 29	164	175	187
Durango	32° threshold	May 9	May 25	June 11	Sept 8	Sept 22	Oct 7	98	120	142
	28° threshold	May 3	May 11	May 19	Sept 16	Oct 5	Oct 25	126	147	169
	24° threshold	Apr 5	Apr 22	May 9	Sept 23	Oct 13	Nov 2	143	174	205
Ignacio	32° threshold	May 23	June 9	June 26	Sept 7	Sept 21	Oct 6	78	104	131
	28° threshold	May 7	May 21	June 4	Sept 11	Oct 1	Oct 20	103	133	164
	24° threshold	Apr 21	May 9	May 27	Sept 18	Oct 13	Nov 7	119	157	195
Pagosa Springs	32° threshold	June 9	June 22	July 4	Aug 15	Sept 7	Sept 30	48	77	107
	28° threshold	May 18	June 5	June 23	Sept 9	Sept 23	Oct 6	89	110	130
	24° threshold	May 1	May 17	June 2	Sept 23	Oct 5	Oct 16	121	141	160

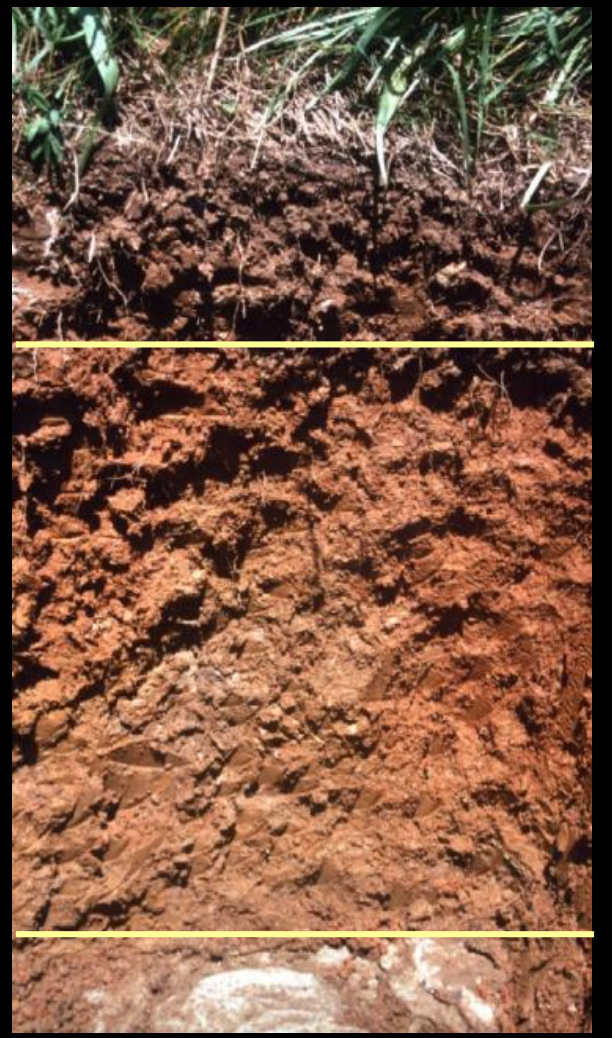
Soil

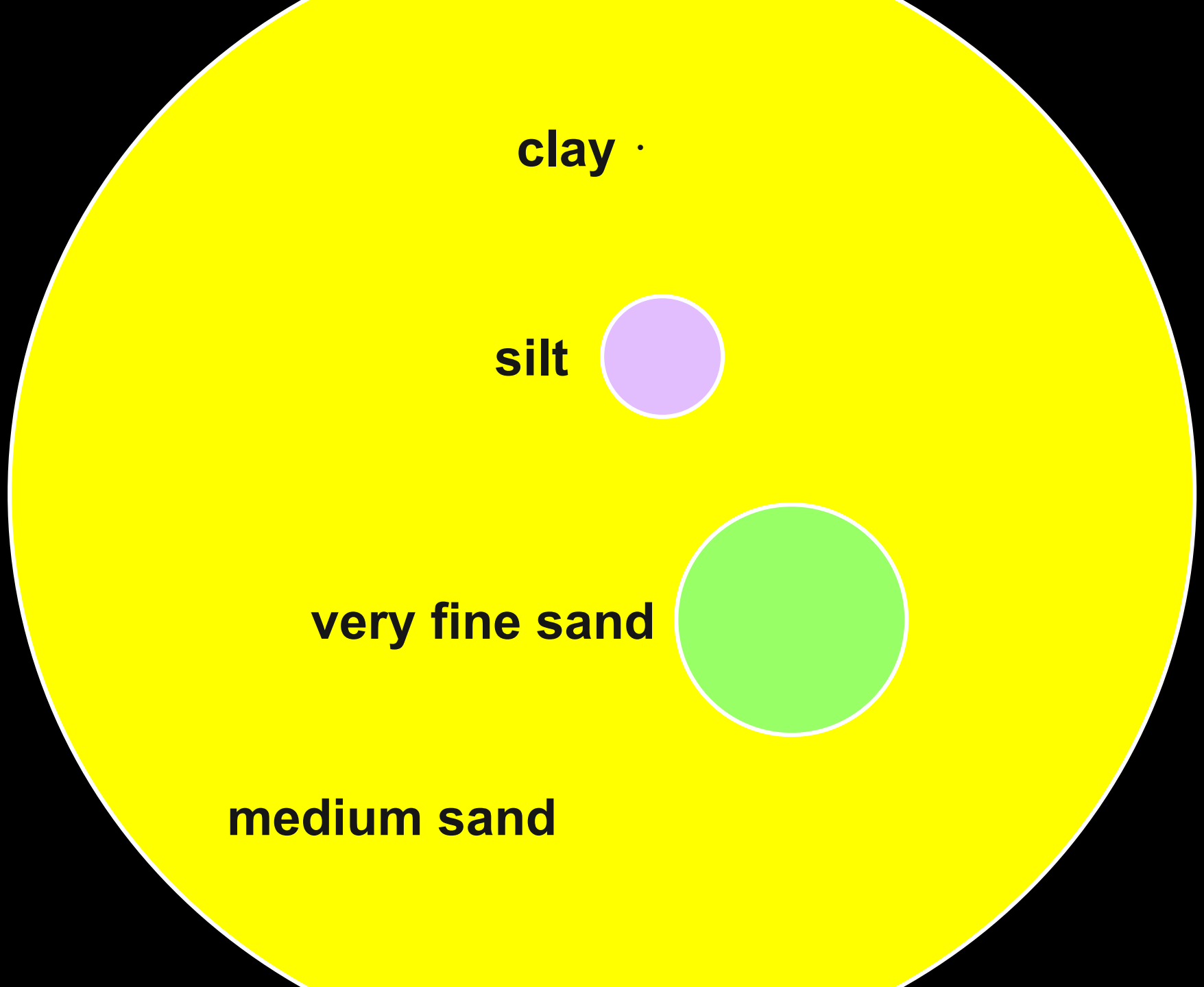
- Supplies water to plant roots
- Supplies nutrients to plant roots
- Provides physical support to plant

Soil varies with depth

A Horizon ("topsoil")

- More organic matter
- Zone of leaching
- Where most roots grow




clay
silt
very fine sand
medium sand

Clay particles extremely small

- < 0.002 mm
- 12,000 clay particles to measure 1 inch
- Plate-like structure
- Negatively charged surfaces

electron microscope picture of clay particles

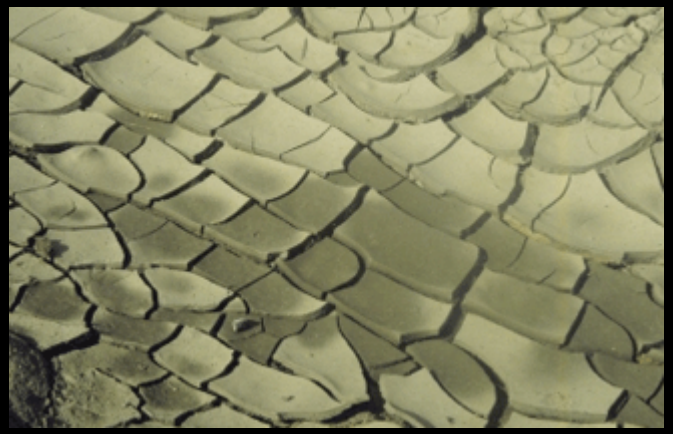
Now that we know what our soil texture is, what can we do if we don't like it?

MODIFY IT!

What is Soil Structure?

- How the particles join together to form 'peds'
- We want soils with a crumb structure
- Adding organic matter is the only way to improve structure

- **Texture** is **unchangeable**; a result of existing mineral content in the soil



- **Structure** is **changeable**; it is the result of how/if particles stick together

Improving Soil Structure

- As O.M. breaks down, gums and resins are released, causing particles to aggregate into peds.
- O.M. provides food at the base of the soil food web, promoting microbe populations which in turn improve soil structure.

Poorly drained soil will remain wet and cold late into the spring

- makes it difficult to grow early-season vegetables.
- If your soil is heavy and remains wet long after rain has stopped, consider using raised beds or add organic matter.
- Raised beds will not only be better drained, they also will warm earlier.

Bed Design

Raised Beds

- Easier to maintain
- Promote drainage
- No deep tilling needed
- If elevated high enough, can be ideal for people in wheelchairs
- Best choices: untreated wood, cinder blocks, recycled materials, bricks

Raised Beds – cont.

- Higher yields
- Reduction in soil compaction
- Earlier planting
- Frost protection – easier
- Soil improvement

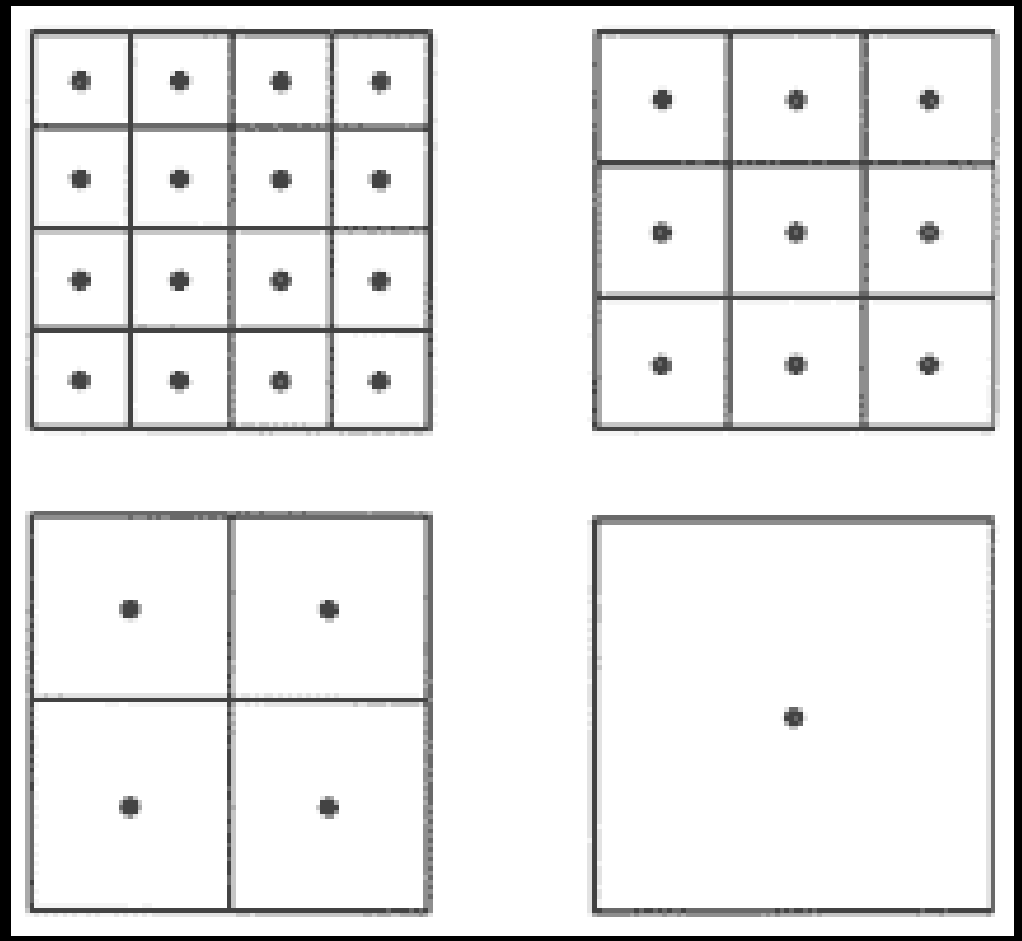
Negatives: more frequent irrigation and fertilization

Raised Bed Recipe (12” deep bed)

- 4” of your native soil
- 4” of topsoil
- 3” of soil amendment
  - Plant-based compost
  - Animal-based (make sure you trust it – only use 1-2”)
  - Worm castings
  - Mushroom or cotton hull compost
  - Peat moss (1-2”)

Square Foot Gardening

- Somewhat similar to block style
- Intensively planted
- Easy to manage
- Promotes crop rotation




CHARLOTTE PIPE


TEAM PRESZLER


ACE

Container (minigardening)

Practical for those who do not have sufficient yard space for an outdoor garden

Cool Season Crops

Hardy vegetables **Broccoli, cabbage, kohlrabi, onions, lettuce, peas, radish, spinach, etc.**	**Semi-hardy vegetables** **Beets, carrots, cauliflower, parsnips, potatoes, Swiss chard, etc.**
Daytime Temperatures (F^{o})	
>40^{o}	>40^{o} to >50^{o}
Night Temperatures (F^{o})	
Survives frosty nip	Less tolerant of frosty nip
Typical Planting Time	
2-4 week before average spring frost date	0-2 weeks before average spring frost date

Warm Season Crops

Tender vegetables **Beans, corn, cucumber, summer squash, etc.**	**Very tender vegetables** **Cantaloupe, eggplant, peppers, winter squash and pumpkins, tomatoes, watermelon, etc.**
Daytime Temperatures (F^{o})	
>60^{o} minimum	> 60^{o} minimum a week below 55^{o} will stunt plants
Night Temperatures (F^{o})	
Intolerant of frost	Intolerant of frost
Typical Planting Time	
planted from seed about time of average spring frost	1+ weeks after average spring frost date, summer-like temperatures

Raising Soil Temperatures

- Soil heat up quickly when dry.
- Wet soil put 90+% of the sun’s energy into drying the soil and are slow to warm.

Measure

- 4-inch deep
- 8 a.m.

Soil Temperature Conditions for Vegetable Seed Germination (in degrees F)

Crop	Minimum	Optimum Range	Optimum	Maximum
Asparagus	50	60-85	75	95
Bean	60	60-85	80	95
Beet	40	50-85	85	95
Cabbage	40	45-95	85	100
Carrot	40	45-85	80	95
Cauliflower	40	45-85	80	100
Chard, Swiss	40	50-85	85	95
Corn	50	60-95	95	105
Cucumber	60	60-95	95	105
Eggplant	60	75-90	85	95
Lettuce	35	40-80	75	95
Muskmelon	60	75-95	90	100
Onion	35	50-95	75	95
Parsley	40	50-85	75	90
Parsnip	35	50-70	65	85
Pea	40	40-75	75	85

Days to Appearance of Seedlings at Various Soil Temperatures from Seed Planted at ½" Depth

	Soil temperature in degrees F								
Crop	**32**	**41**	**50**	**59**	**68**	**77**	**86**	**95**	**104**
Asparagus	x	x	53	24	15	10	11	19	28
Bean	x	x	x	16	11	8	6	6	x
Beet	...	42	17	10	6	5	4	4	...
Cabbage	...	...	15	9	6	4	3	...	...
Carrot	x	51	17	10	7	6	6	8	x
Cauliflower	...	...	19	10	6	5	4	...	...
Corn	x	x	22	12	7	4	4	3	x
Cucumber	x	x	x	13	6	4	3	3	...
Eggplant	...	...	...	13	8	5	...	...	...
Lettuce	49	15	7	4	3	2	2	x	x
Muskmelon	...	...	...	...	8	4	3	...	...
Onion	135	31	13	7	5	4	4	12	x
Parsley	...	...	29	17	14	13	12	...	...
Parsnip	171	57	27	19	14	15	32	x	x
Pea	...	36	13	9	7	6	6	...	...
Pepper	x	x	x	25	12	8	8	9	x
Radish	...	29	11	6	4	3	3	....	...

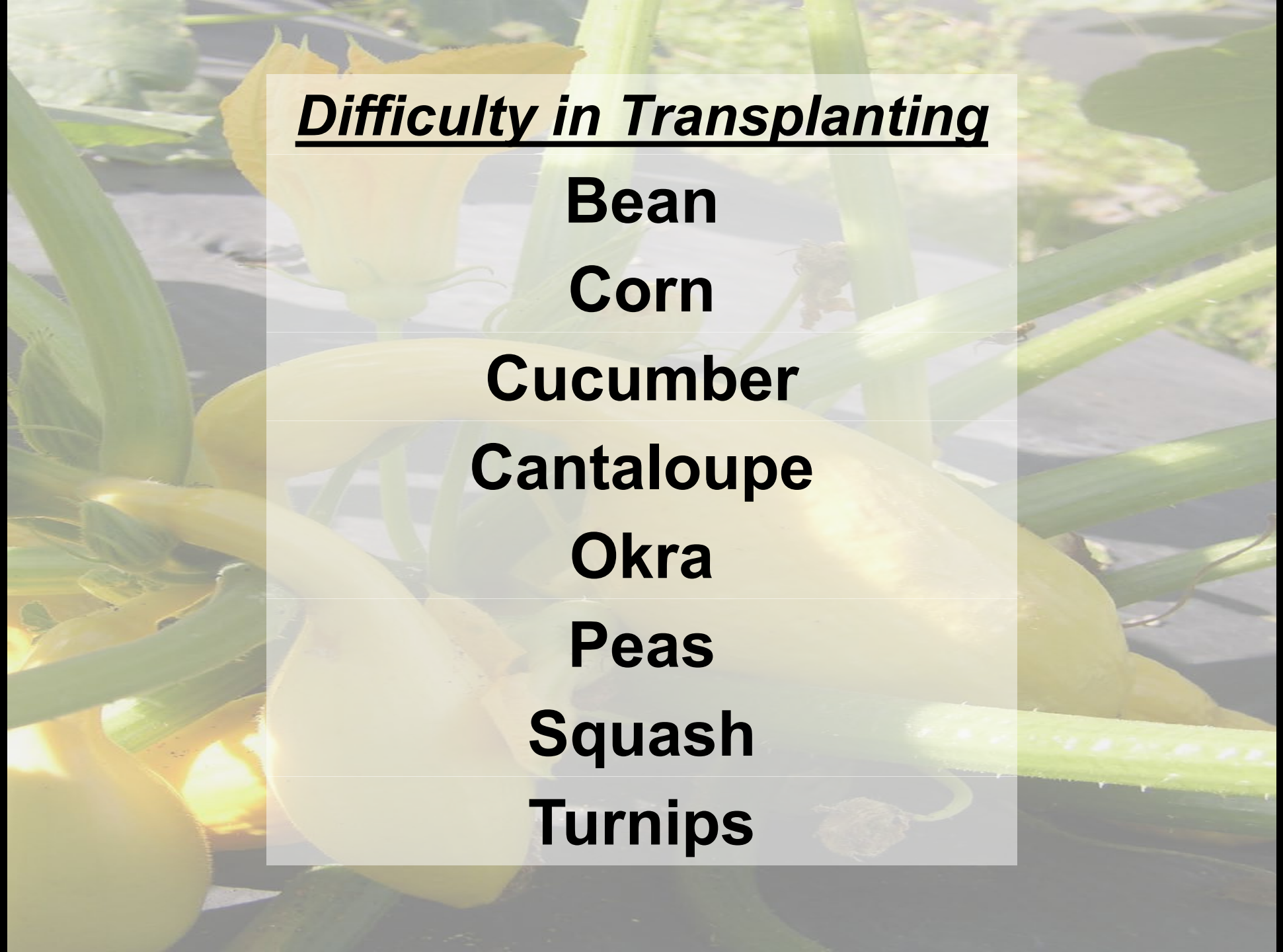
Vegetable Transplantability

Easily Survives Transplanting

Beet	Strawberry
Broccoli	Lettuce
Cabbage	Pepper
Chard	Tomato
Collards	Eggplant

Requires Care in Transplanting

Carrot	Watermelon
Celery	Spinach
Kale	Parsley
Kohlrabi	Mustard



Difficulty in Transplanting

Bean

Corn

Cucumber

Cantaloupe

Okra

Peas

Squash

Turnips

Choices, choices, choices

- Sun gold (I)
- Sweet 100’s (I)
- Big Beef I)
- Golden Girl (D)
- Park’s Whopper (I)
- Celebrity (D)
- Better Bush (D)
- Early Goliath (I)
- Fourth of July (D)

- Anything with ‘Siberian’ or ‘Arctic’ in name
- Look for Days to Maturity < 75

Choose the best type/variety

- Fruits going to color tend to add about 3 weeks
- Think small!
  - Padron
  - Shishito
  - Jalapeno
  - Corno di Toro
  - Cherry peppers

Courtesy Johnny's Selected Seeds

Bean Varieties

- Blue Lake
- Provider
- Cosmos
- Fortex (I)

Varieties

Broccoli

- DiCiccio (SS)
- Green Comet (H)
- Green Goliath (SS/H)

Kale

- Winterbor
- Toscano
- Redbor

Cabbage

- Farao
- Tiara
- Golden Ace
- Primax
- Pac and Boc Choy

Varieties

- Candy
- Red Candy
- Superstar
- Cipollini

Varieties

- Music
- Rocambole
- German Porcelain
- Spanish Roja
- Inchelium (S)
- Silver White (S)

Varieties

- YaYa
- Bolero
- Mokum
- Nelson
- Tendersweet
- Danver’s Half Long

Varieties

- Touchstone (golden)
- Chioggia
- Merlin
- Bull’s Blood
- Early Wonder
- Red Ace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Insectary Gardens

If you miss the harvest of certain crops let them go to seed (umbels: fennel, parsely, carrot, dill)

- Comfrey
- Borage
- Yarrow
- Mustards
- Buckwheat
- Cosmos
- Clover
- Alfalfa
- Cornflower





The Good Guys

Hover Flies

Tachinid Flies

- Adults lay eggs on caterpillars, beetles, and bugs usually near head
- Eggs quickly hatch
- Maggots tunnel into host

Parisitoid Wasps

- Female ichneumons have long ovipositor; inject eggs into larvae
- Braconids lay eggs on, or just under, surface

Predatory Insects

Predatory Mite

Ground Beetle

European Mantid

Spider

Questions or Discussion?

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