

# Vegetable Garden Basics

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Please note: To keep its file size small enough to transfer easily via Internet, we have compressed this pdf; its photos are thus less crisp than the originals. However, you will find the quality is good in the essential graphic message in this presentation, that is, how to use the vegetable garden planning pages.

Good gardening,  
Janet Macunovich & Steven Nikkila

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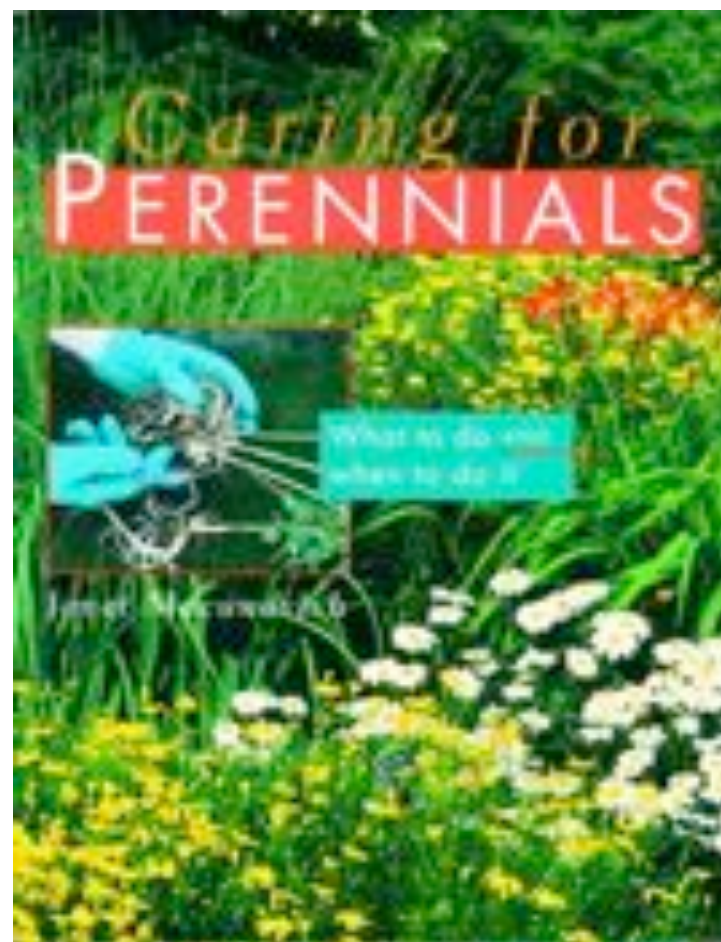
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Janet Macunovich & Margaret Thele





## Sage Advice Nursery



Janet Macunovich & Margaret Thele



## **Vegetable Garden Basics, Part 1** (February 6)

*What to grow and how much to expect to harvest, when.*

When to start seeds or buy plants, prepare the planting bed and start growing. We'll look together at a timetable for all the common vegetables and then spend time working out your own personal schedule for this year's garden.

## **Vegetable Garden Basics, Part 2** (February 13)

*Caring for and harvesting vegetables, with a special emphasis on the pest, disease and stress problems that occurred last year to identify which may carry over and what to do when to stop the cycle.*

## **Vegetable Garden Basics, Part 3** (February 27)

*The Etiquette of Community Gardening*

Special aspects of managing your garden within a large community garden. A workshop based on the experience of gardeners in long established community plots. How to make the most of the advantages of community and diversity and do your best to compensate for the drawbacks of growing so close with so many others.



# Vegetable Garden Basics - Part 1 -

What will you grow?  
How much: Need vs. space  
When to start growing



## Try it: Plan a Garden!

**Choose your crops** (Assuming a site good for anything: full sun, loose soil that's not soggy)

1. What will you/your family eat?

2. Will you graze a little at a time or do you want a serious harvest to preserve / freeze / store?

For a little at a time: Select a variety AND aim for a mix of crops that mature at various times

Serious harvest: Select a few, make sure you plant enough of each.

Check the chart: How long a row of each crop do you need to provide the pounds you want?

Plants needed to provide listed pounds = # of row feet ÷ spacing between plants (5' ÷ 1" = 60 pea plants)

3. Rotate crops

Have these plants been grown in that ground during past 3 years?

Check the chart: What family is the plant? (2nd column "family") Move a family's plants to new space.

Is there room to place a repeat plant where it and its family have not grown recently?

## Decide plants or seed

**Seed** is fun but not always inexpensive as it seems

- If sown where it will grow, you need to thin and to accept some loss
- If sown indoors: \$ can add up as you equip an indoor-growing area to start seed early

**Plants:** Don't buy until it's time to plant (April 1, April 15, May 15, June 10 -- "set out / sow" column 4)

## Choose varieties...

- Varieties that are **what you expect** and need
- Varieties that are **disease resistant**

**... and healthy plants or seed**

- Individual already-started plants should be **stocky, sturdy, pest free**
- Seed from a **reputable source** (Burpee, Ball, Cook's, Park's, Seed Savers Exchange, etc.)

**Get the bed ready** by your earliest plant-out date: \_\_\_\_\_

- Remove whatever is growing there, roots and all
- Loosen (don't pulverize) soil. Use a fork, not tiller; or tiller just once lightly
- Check how well water drains out of an 18" deep hole; raise bed if takes +12 hours
- Soil test done? Use the prescribed fertilizer. Or add a balanced complete slow release organic







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## Try it: Plan a Garden!

### Choose your crops (Assuming a site good for any)

1. What will you/your family eat?

2. Will you graze a little at a time or do you want a big harvest?

For a little at a time: Select a variety AND a quantity

Serious harvest: Select a few, make sure you have enough

Check the chart: How long a row of each crop

Plants needed to provide listed pounds

3. Rotate crops

Have these plants been grown in that group before?

Check the chart: What family is the plant?

Is there room to place a repeat plant where you want?

### Decide plants or seed

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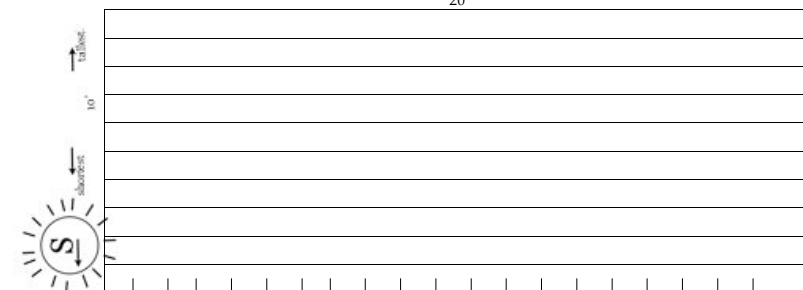
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Choice annual edibles: Michigan (SE: ave. 185-195 day growing season, ave. last frost 5/12, first freeze 10/9, 1.5" to 3" rain per month)

crop	family	start seed in-doors	set out/sow, for summer crop - fall crop	spacing between plants x rows	days to harvest	yield per row of given length	problems	ornam. relatives
peas	legume	4/1	4/1 - 5/15	1" x 8"	70	5 lb/ 25'	mildew, wilt, pea curculio	sweet pea, locust tree, baptisia, true clover, peanut
beans		5/1	5/10 7/4	2" x 24"	55	30 lb/ 25' pole, more	leaf spot, aphids, bean beetle	
broccoli		4/ 15	4/15 7/1	12" x 24"	70	20 lb/ 10'	flea beetle (leaf, early), aphids, cabbage looper, cabbage maggot	kale, collards, rock cress, candy tuft,

Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
	Col. 2 Family Separate family members w/ space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See Yield col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - Days to harvest col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.



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## Try it: Plan a Garden!

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2. Will you graze a little at a time or do you want a big harvest?

For a little at a time: Select a variety AND a quantity.

Serious harvest: Select a few, make sure you have enough.

Check the chart: How long a row of each crop?

Plants needed to provide listed pounds.

3. Rotate crops

Have these plants been grown in that group before?

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Is there room to place a repeat plant where?

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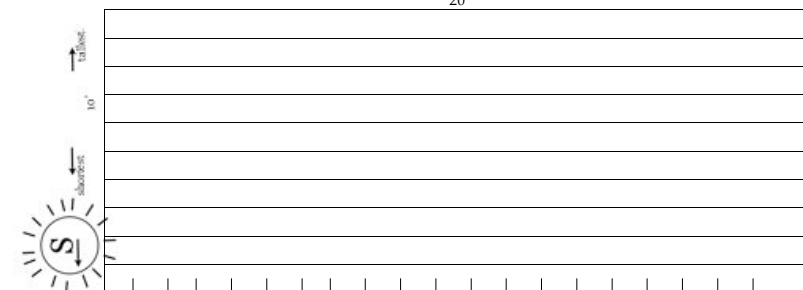
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Fedco Seeds [fedcoseeds.com](http://fedcoseeds.com)  
Johnny's Selected Seed [johnnyseeds.com](http://johnnyseeds.com)  
Pinetree Seeds [superseeds.com](http://superseeds.com)  
Seed Savers Exchange [seedsavers.org](http://seedsavers.org)

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broccoli	mustard	4/ 15	<u>4/15</u> 7/1	12" x 24"	70	20 lb/ 10'	flea beetle (leaf, early), aphids, cabbage looper, cabbage maggot (roots, summer) aphids, slugs, clubroot	kale, collards, rock cress, candy tuft, money plant, kohlrabi
cauliflower		4/1	<u>4/15</u> 6/20	12-18" x 24"	75 90	15 lb/ 10' 7 lb/ 10'		
cabbage			<u>4/1</u> , Aug	1" x 12"	30	bunch/1'	flea beetle flea beetle, cabbage maggot	
Brusls sprout								
radish			<u>4/1</u> , Aug	1" x 12"	30	bunch/1'		
turnip lf, root			4/15	2" x 18"	30, 60			
lettuce, leaf -head	daisy	4/15	<u>4/15</u> - 8/10 <u>4/15</u> - 8/1	4" x 12" 12" x 18"				
spinach	goosefoot		<u>4/1</u> - 6/15	3 x 18"				
squash	cucurbit	5/15	6/15	36" x 60"				
cuke/ zucchini		5/10	<u>5/20</u> - 6/15	12" x 48"				
pumpkin			<u>5/20</u> - 6/15	36" x 60"				
waterm/ cant		5/15	6/10	30" x 48"				
tomato	night-shade	5/15	5/15 - 6/10	18" x 36"				
pepper		5/15	5/20 - 6/15	18" x 30"				
eggplant		5/15	5/20 - 6/1	18" x 30"	70	10 lb/ 10'	F, N, T), early blight, cuc. mosaic, leaf spot, fruitworm, hornworm, potato beetle, spider mite	datura
potato			4/15 - 6/1	12" x 30"	90	10 lb/ 10'		
carrot	umbel	4/1	<u>4/20</u> - 7/1	2" x 15"	65	10 lb/ 10'	parsley worm (black swallowtail btrfly)	parsley, Qu Ann Lc, dill, celery, bishops weed
celery			4/20	12"	90	1 head		
sweet potato	morning glory		6/1	12" x 30"	115	10 lb/ 10'	wilt, nematodes, scurf, pox, stink bugs	morning glory
okra	mallow		5/20	12" x 36"	60	10 lb/ 10'	Japanese beetle	hibiscus, hollyhock
corn	grass	5/10	<u>5/10</u> - 6/20	10" x 30"	80	5 doz/ 50'	corn earworm, borer	grasses

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pumpkin			<u>5/20</u> - 6/15	36" x 60"	90	50 lb./ 50'		
waterm/ cant		5/15	6/10	30" x 48"	90	10 lb/ 25'		
tomato	night- shade	5/15	5/15 - 6/10	18" x 36"	80	10 lb/ 10'	verticillium & fusarium wilt, nematodes, tobacco mosaic virus (V, F, N, T), early blight, cuc. mosaic, leaf spot, fruitworm, hornworm, potato beetle, spider mite	petunia, nicotiana, nierembergia, datura
pepper		5/15	5/20 - 6/15	18" x 30"	75	6 lb/ 10'		
eggplant		5/15	5/20 - 6/1	18" x 30"	70	10 lb/ 10'		
potato			4/15 - 6/1	12" x 30"	90	10 lb/ 10'		
carrot	umbel	4/1	<u>4/20</u> - 7/1	2" x 15"	65	10 lb/ 10'	parsley worm (black swallowtail btrfly)	parsley, Qu Ann Lc, dill, celery, bishops weed
celery			4/20	12"	90	1 head		
sweet potato	morning glory		6/1	12" x 30"	115	10 lb/ 10'	wilt, nematodes, scurf, pox, stink bugs	morning glory
okra	mallow		5/20	12" x 36"	60	10 lb/ 10'	Japanese beetle	hibiscus, hollyhock
corn	grass	5/10	<u>5/10</u> - 6/20	10" x 30"	80	5 doz/ 50'	corn earworm, borer	grasses

Grazers, or aiming  
for serious harvest?







1/2 pound



1/4  
pound



1- 1/2  
pounds







**Choice annual edibles: Michigan** (SE: ave.185-195 day growing season, ave. last frost 5/12, first freeze 10/9, 1.5" to 3" rain per month)

crop	family	start seed in-doors	set out/sow, for <u>summer crop</u> - fall crop	spacing between plants x rows	days to harvest	yield per row of given length	problems	ornam. relatives
peas	legume	4/1	<u>4/1</u> - <u>5/15</u>	1" x 8"	70	5 lb/ 25'	mildew, wilt, pea curculio	sweet pea, locust tree, baptisia, true clover, peanut
beans		5/1	<u>5/10</u> 7/4	2" x 24"	55	30 lb/ 25' pole, more	leaf spot, aphids, bean beetle	
broccoli	mustard	4/ 15	<u>4/15</u> 7/1	12" x 24"	70	20 lb/ 10'	flea beetle (leaf, early), aphids, cabbage looper, cabbage maggot (roots, summer) aphids, slugs, clubroot	kale, collards, rock cress, candy tuft, money plant, kohlrabi
cauliflower		4/1	<u>4/15</u> 6/20	12-18" x 24"	75 90	15 lb/ 10' 7 lb/ 10'		
cabbage			<u>4/1</u> , Aug	1" x 12"	30	bunch/ 1'	flea beetle flea beetle, cabbage maggot	
Brusls sprout			4/15	2" x 18"	30, 60			
radish								
turnip lf, root								
lettuce, leaf -head	daisy	4/15	<u>4/15</u> - 8/10 <u>4/15</u> - 8/1	4" x 12" 12" x 18"	45 70	5 lb/ 10'	aphids, slugs, cutworm	daisy, aster, Joe
spinach	goosefoot		<u>4/1</u> - 6/15	3 x 18"	50			
squash	cucurbit	5/15	6/15	36" x 60"	90			
cuke/ zucchini		5/10	<u>5/20</u> - 6/15	12" x 48"	60			
pumpkin			<u>5/20</u> - 6/15	36" x 60"	90			
waterm/ cant		5/15	6/10	30" x 48"	90			
tomato	night-shade	5/15	5/15 - 6/10	18" x 36"	80			
pepper		5/15	5/20 - 6/15	18" x 30"	75			
eggplant		5/15	5/20 - 6/1	18" x 30"	70			
potato			4/15 - 6/1	12" x 30"	90			
carrot	umbel	4/1	<u>4/20</u> - 7/1	2" x 15"	65			
celery			4/20	12"	90			
sweet potato	morning glory		6/1	12" x 30"	115	10 lb/ 10'	wilt, nematodes, scurf, pox, stink bugs	morning glory
okra	mallow		5/20	12" x 36"	60	10 lb/ 10'	Japanese beetle	hibiscus, hollyhock
corn	grass	5/10	<u>5/10</u> - 6/20	10" x 30"	80	5 doz/ 50'	corn earworm, borer	grasses

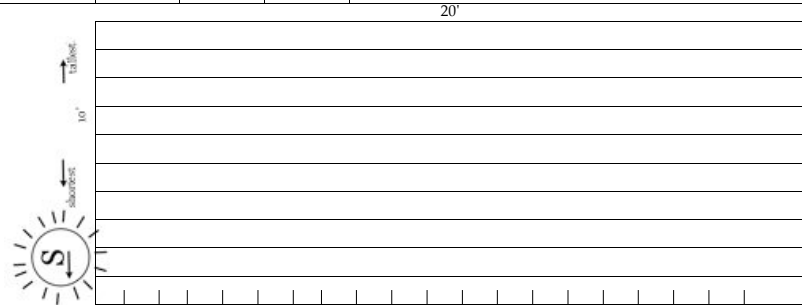
# How to fit what you need into the space you have

How to fit what you need into the space you have

**Choice annual edibles: Michigan** (SE: ave.185-195 day growing season, ave. last frost 5/12, first freeze 10/9, 1.5" to 3" rain per month)

crop	family	start seed in-	set out/sow, for <u>summer crop</u> - fall	spacing between plants x	days to harvest	yield per row of given length	problems	ornam. relatives
						5 lb/ 25'	mildew, wilt, pea curculio	sweet pea, locust
						30 lb/ 25' pole, more	leaf spot, aphids, bean beetle	tree, baptisia, true clover, peanut
						20 lb/ 10'	flea beetle (leaf, early), aphids, cabbage looper, cabbage maggot (roots, summer) aphids, slugs, clubroot	kale, collards, rock cress, candy tuft, money plant, kohlrabi
						15 lb/ 10'		
						7 lb/ 10'		
						bunch/ 1'		
							flea beetle flea beetle, cabbage maggot	
						5 lb/ 10'	aphids, slugs, cutworm	daisy, aster, Joe

Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
	Col. 2 <i>Family</i> Separate family members w/ space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans /serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.




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Questions or free newsletter [www.GardenAtoZ.com](http://www.GardenAtoZ.com) [info@GardenAtoZ.com](mailto:info@GardenAtoZ.com)

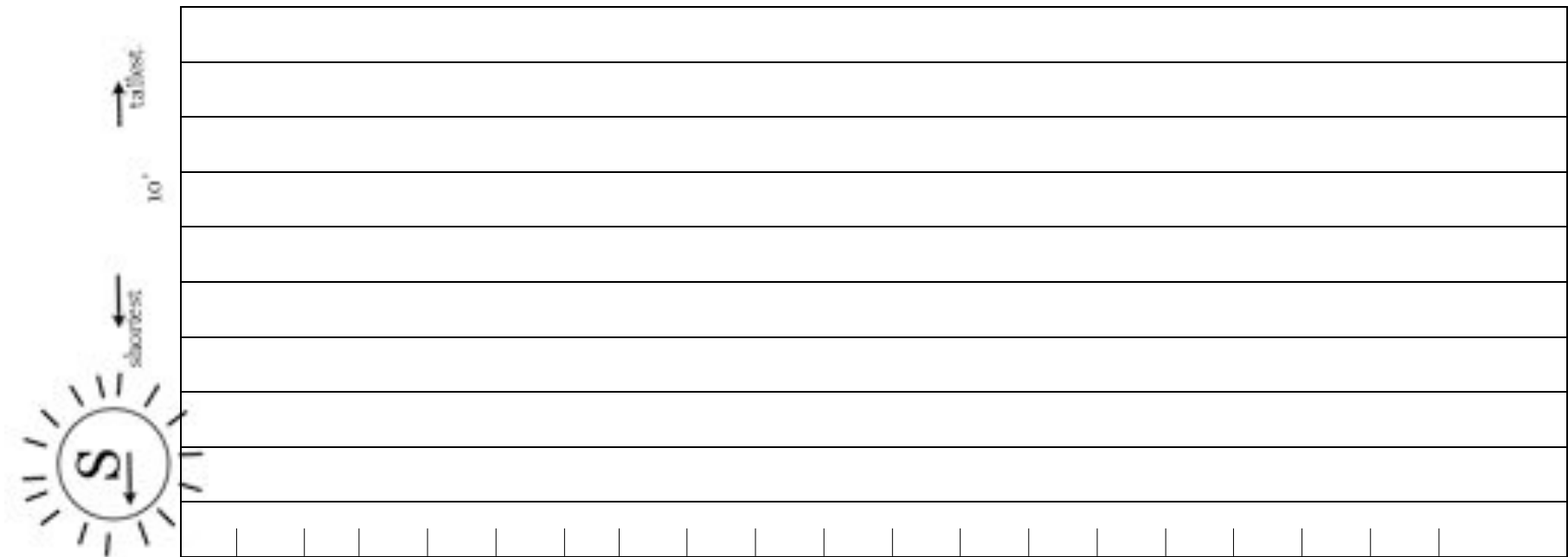
# How to fit what you need into the space you have

potato	nigella		4/15 - 6/1	12" x 30"	90			
carrot	umbel	4/1	4/20 - 7/1	2" x 15"	65			
celery			4/20	12"	90			
sweet potato	morning glory		6/1	12" x 30"	115	10 lb/ 10'	wilt, nematodes, scurf, pox, stink bugs	morning glory
okra	mallow		5/20	12" x 36"	60	10 lb/ 10'	Japanese beetle	hibiscus, hollyhock
corn	grass	5/10	5/10 - 6/20	10" x 30"	80	5 doz/ 50'	corn earworm, borer	grasses



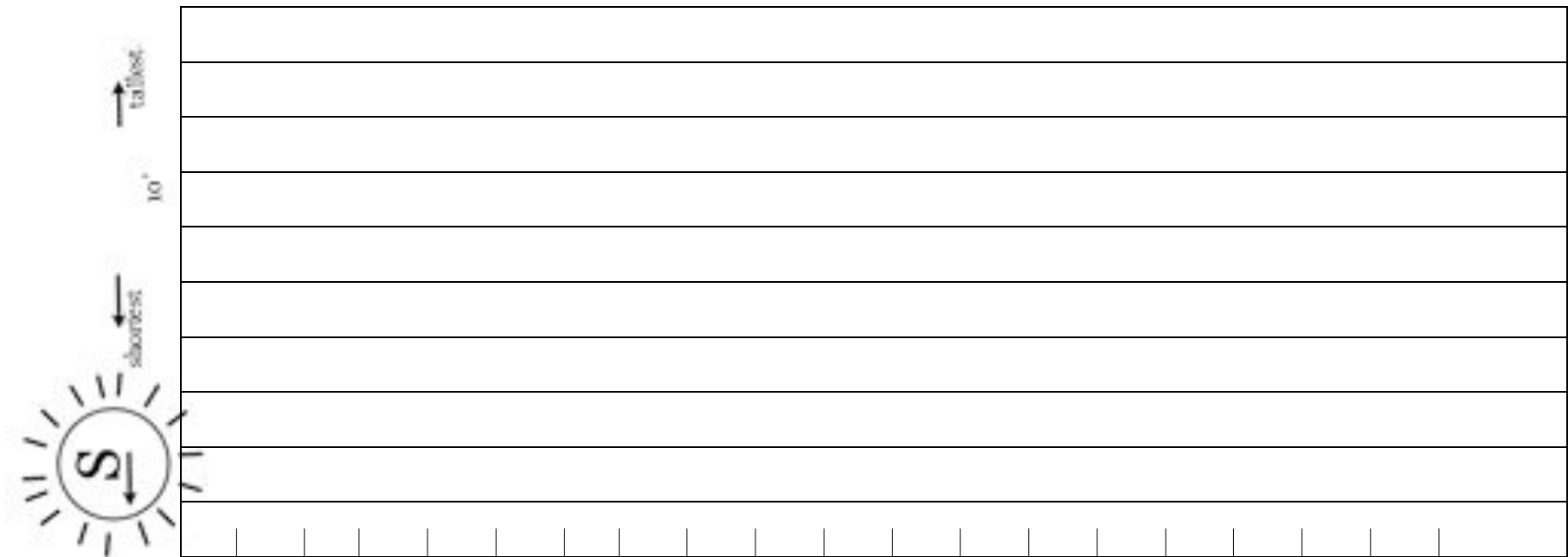
Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
						
	Col. 2 <i>Family</i> Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days</i> <i>to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

20'



Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
tomato						
	Col. 2 <i>Family</i> Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

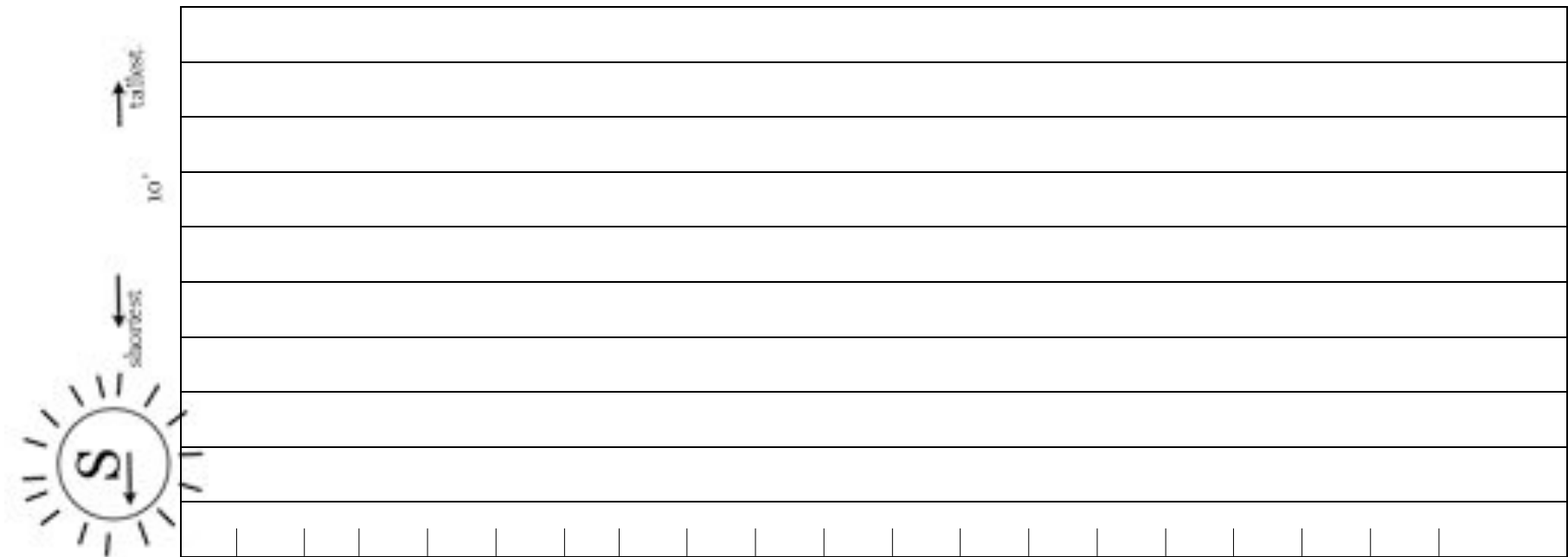
20'





Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
tomato						
	Col. 2 <i>Family</i> Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

20'

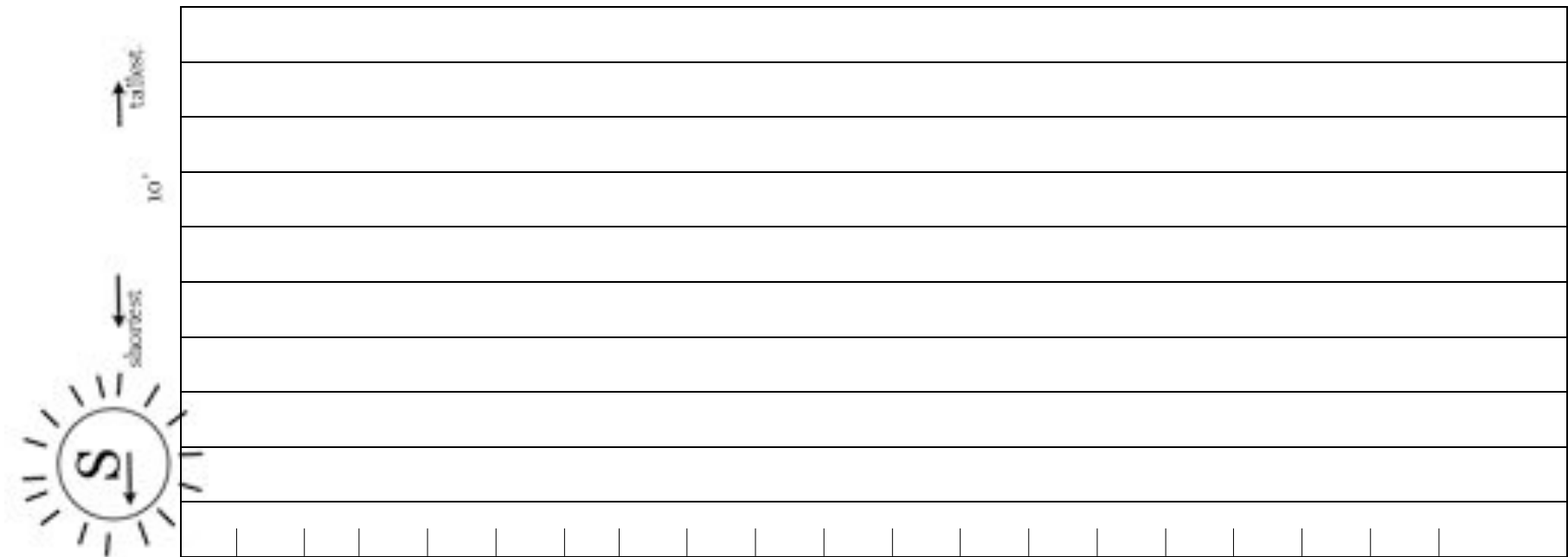







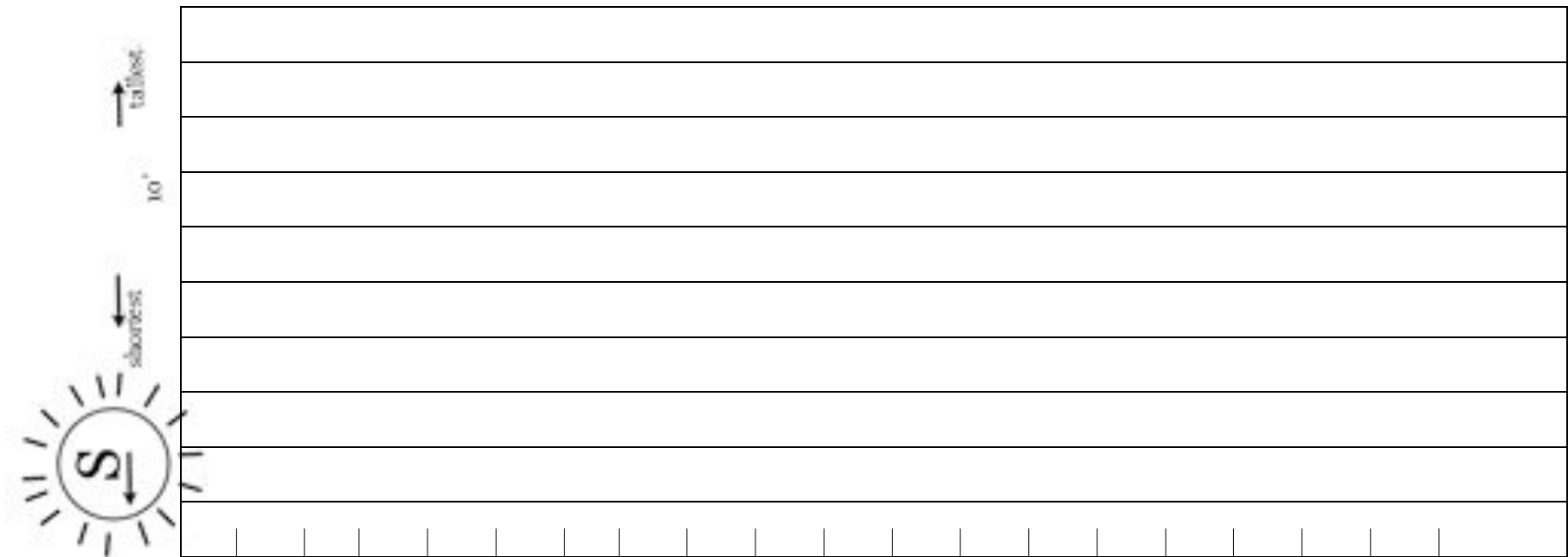
Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
tomato	night-shade					
	Col. 2 Family Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

20'



Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
tomato	night-shade					
	Col. 2 <i>Family</i> Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

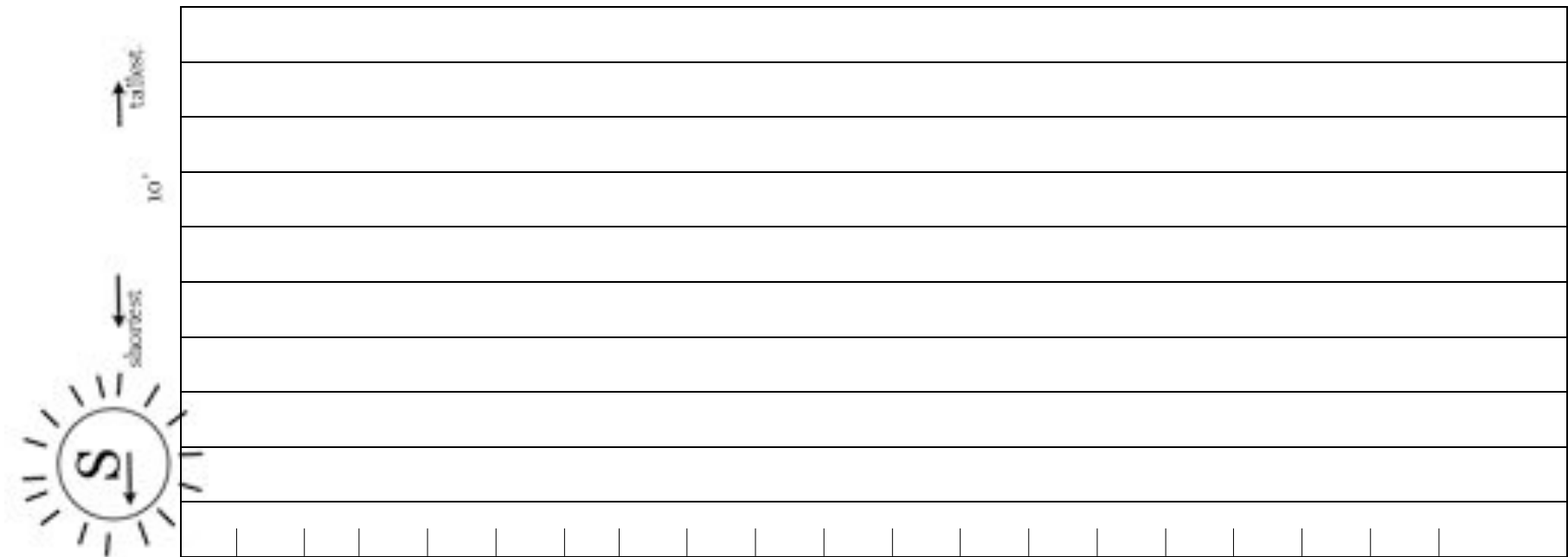
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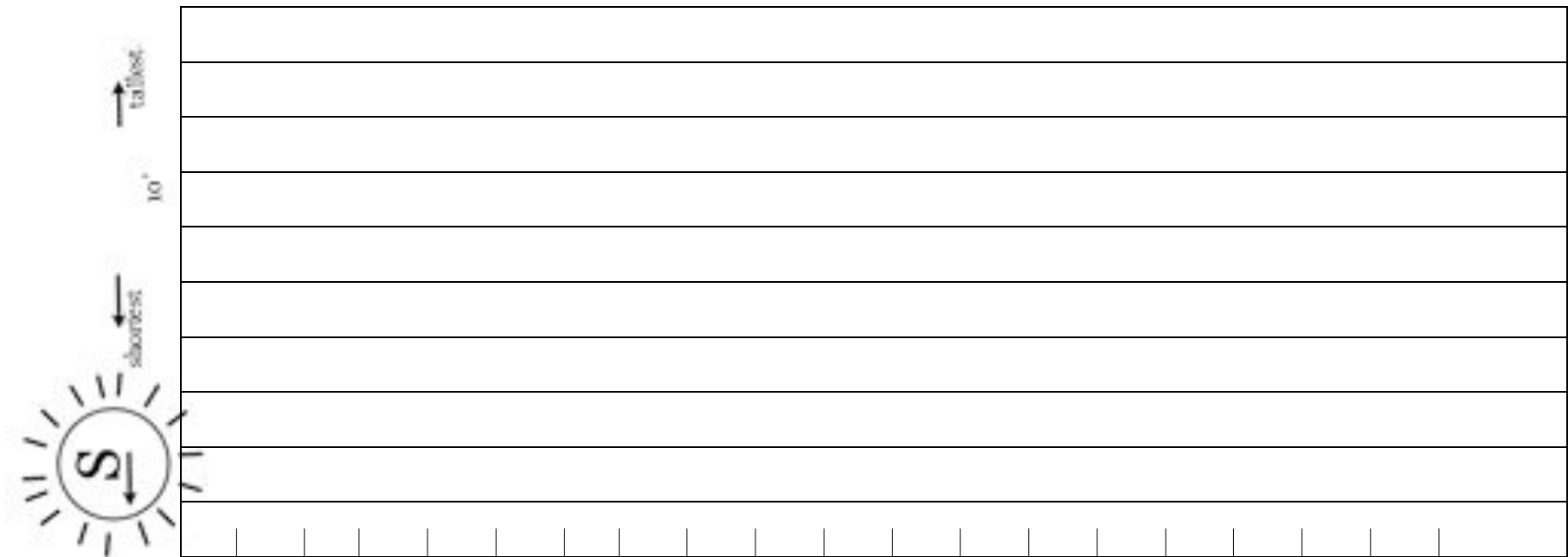
Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
tomato	night-shade	50, 1/4 lb.				
	Col. 2 Family Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

20'



Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
tomato	night-shade	12.5 lb.				
	Col. 2 <i>Family</i> Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See <i>Yield</i> col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - <i>Days to harvest</i> col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

20'











































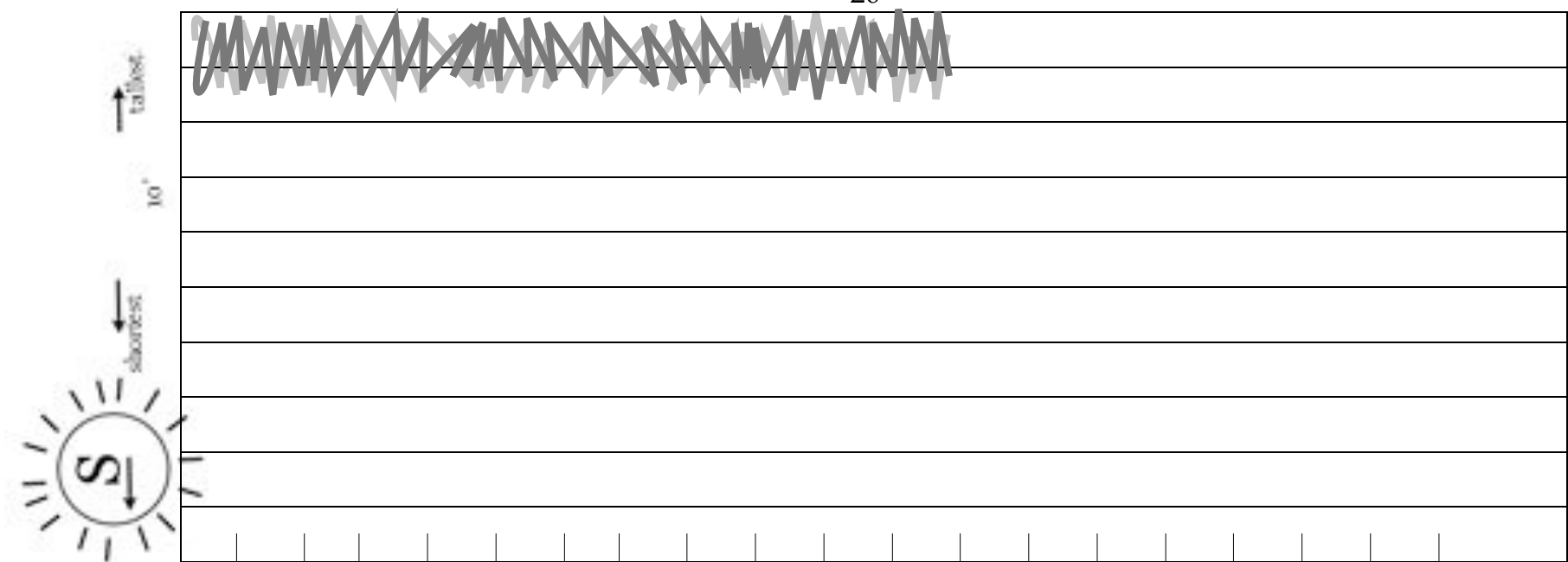








Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes																																																																																																																																																																																																														
tomato	night-shade	12.5 lb.	12.5 ft.	7/10	4/15																																																																																																																																																																																																															
			8 plants																																																																																																																																																																																																																	
<div>Choose annual edibles: Michigan (zone 5: ave.185-195 day growing season, ave. last frost 5/12, first freeze 10/9, 1.5" to 3" rain per month)</div> <table><tr><th>crop</th><th>family</th><th>start seed in-doors</th><th>set out for summer crop - 1st</th><th>row, spacing between plants x rows</th><th>days to harvest</th><th>yield per row of given length</th><th>problems</th><th>ornam. relatives</th></tr><tr><td>peas</td><td>legume</td><td>4/1</td><td>4/1 - 5/1</td><td>1" x 8"</td><td>70</td><td>5 lb/ 25'</td><td>mildew, wilt, pea curculio</td><td>sweet pea, locust tree, baptisia, true clover, peanut</td></tr><tr><td>beans</td><td></td><td>5/1</td><td>5/10</td><td>2" x 24"</td><td>55</td><td>30 lb/ 25' pole, more</td><td>leaf spot, aphids, bean beetle</td><td></td></tr><tr><td>broccoli</td><td rowspan="4">mustard</td><td>4/ 15</td><td>4/15 - 7/1</td><td>12" x 24"</td><td>70</td><td>20 lb/ 10'</td><td>flea beetle (leaf, early), aphids, cabbage looper, cabbage maggot (roots, summer) aphids, slugs, clubroot</td><td>kale, collards, rock cress, candy tuft, money plant, kohlrabi</td></tr><tr><td>cauliflower</td><td>4/1</td><td>4/15 - 6/20</td><td>12-18" x 24"</td><td>75</td><td>15 lb/ 10'</td><td></td><td></td></tr><tr><td>Brussels sprout</td><td></td><td>4/1, Aug</td><td>1" x 12"</td><td>30</td><td>bunch/1'</td><td></td><td></td></tr><tr><td>radish</td><td></td><td>4/15</td><td>2" x 18"</td><td>30, 60</td><td></td><td>flea beetle</td><td></td></tr><tr><td>turnip lf, root</td><td></td><td></td><td></td><td></td><td></td><td></td><td>flea beetle, cabbage maggot</td><td></td></tr><tr><td>lettuce, leaf-head</td><td>daisy</td><td>4/15</td><td>4/15 - 8/10</td><td>4" x 12"</td><td>45</td><td>5 lb/ 10'</td><td>aphids, slugs, cutworm</td><td>daisy, aster, Joe Pye, <i>Liatris</i>, many</td></tr><tr><td>spinach</td><td>goosefoot</td><td></td><td>4/1 - 6/1</td><td>12" x 18"</td><td>70</td><td>1 head/ 1'</td><td></td><td>beets, chard</td></tr><tr><td>squash</td><td rowspan="4">cucurbit</td><td>5/15</td><td>6/15</td><td>3 x 18"</td><td>50</td><td>10 lb/ 25'</td><td>aphids, harlequin bug</td><td>wild cucumber</td></tr><tr><td>cuke/ zucchini</td><td>5/10</td><td>5/20 - 6/15</td><td>36" x 60"</td><td>90</td><td>10 lb/ 10'</td><td>squash bug, squash vine borer,</td><td></td></tr><tr><td>pumpkin</td><td></td><td>5/20 - 6/15</td><td>12" x 48"</td><td>60</td><td>15 lb/ 10'</td><td>mildew, cucumber mosaic, wilt, scab, cucumber beetle</td><td></td></tr><tr><td>watermelon</td><td>5/15</td><td>6/10</td><td>36" x 60"</td><td>90</td><td>50 lb./ 50'</td><td>anthracnose, leaf spot</td><td></td></tr><tr><td>cantaloupe</td><td></td><td>5/15</td><td>6/10</td><td>30" x 48"</td><td>90</td><td>10 lb/ 25'</td><td></td><td></td></tr><tr><td>tomato</td><td rowspan="4">night-shade</td><td>5/15</td><td>5/15 - 6/1</td><td>18" x 36"</td><td>80</td><td>10 lb/ 10'</td><td>verticillium &amp; fusarium wilt, nematodes, tobacco mosaic virus (V, F, N, T), early blight, cuc. mosaic, leaf spot, fruitworm, hornworm, potato beetle, spider mite</td><td>petunia, nicotiana, nierembergia, datura</td></tr><tr><td>pepper</td><td>5/15</td><td>5/20 - 6/1</td><td>18" x 30"</td><td>75</td><td>6 lb/ 10'</td><td></td><td></td></tr><tr><td>eggplant</td><td>5/15</td><td>5/20 - 6/1</td><td>18" x 30"</td><td>70</td><td>10 lb/ 10'</td><td></td><td></td></tr><tr><td>potato</td><td></td><td>4/15 - 6/1</td><td>12" x 30"</td><td>90</td><td>10 lb/ 10'</td><td></td><td></td></tr><tr><td>carrot</td><td rowspan="2">umbel</td><td></td><td>4/20 - 7/1</td><td>2" x 15"</td><td>65</td><td>10 lb/ 10'</td><td>parsley worm (black swallowtail btrfly)</td><td>parsley, Qu Ann Lc, dill, celery, bishops weed</td></tr><tr><td>celery</td><td></td><td>4/20</td><td>12"</td><td>90</td><td>1 head</td><td></td><td></td></tr><tr><td>sweet potato</td><td>morning glory</td><td></td><td>6/1</td><td>12" x 30"</td><td>115</td><td>10 lb/ 10'</td><td>wilt, nematodes, scurf, pox, stink bugs</td><td>morning glory</td></tr><tr><td>okra</td><td>mallow</td><td></td><td>5/20</td><td>12" x 36"</td><td>60</td><td>10 lb/ 10'</td><td>Japanese beetle</td><td>hibiscus, hollyhock</td></tr><tr><td>corn</td><td>grass</td><td>5/10</td><td>5/10 - 6/2</td><td>10" x 30"</td><td>80</td><td>5 doz/ 50'</td><td>corn earworm, borer</td><td>grasses</td></tr></table>							crop	family	start seed in-doors	set out for summer crop - 1st	row, spacing between plants x rows	days to harvest	yield per row of given length	problems	ornam. relatives	peas	legume	4/1	4/1 - 5/1	1" x 8"	70	5 lb/ 25'	mildew, wilt, pea curculio	sweet pea, locust tree, baptisia, true clover, peanut	beans		5/1	5/10	2" x 24"	55	30 lb/ 25' pole, more	leaf spot, aphids, bean beetle		broccoli	mustard	4/ 15	4/15 - 7/1	12" x 24"	70	20 lb/ 10'	flea beetle (leaf, early), aphids, cabbage looper, cabbage maggot (roots, summer) aphids, slugs, clubroot	kale, collards, rock cress, candy tuft, money plant, kohlrabi	cauliflower	4/1	4/15 - 6/20	12-18" x 24"	75	15 lb/ 10'			Brussels sprout		4/1, Aug	1" x 12"	30	bunch/1'			radish		4/15	2" x 18"	30, 60		flea beetle		turnip lf, root							flea beetle, cabbage maggot		lettuce, leaf-head	daisy	4/15	4/15 - 8/10	4" x 12"	45	5 lb/ 10'	aphids, slugs, cutworm	daisy, aster, Joe Pye, <i>Liatris</i> , many	spinach	goosefoot		4/1 - 6/1	12" x 18"	70	1 head/ 1'		beets, chard	squash	cucurbit	5/15	6/15	3 x 18"	50	10 lb/ 25'	aphids, harlequin bug	wild cucumber	cuke/ zucchini	5/10	5/20 - 6/15	36" x 60"	90	10 lb/ 10'	squash bug, squash vine borer,		pumpkin		5/20 - 6/15	12" x 48"	60	15 lb/ 10'	mildew, cucumber mosaic, wilt, scab, cucumber beetle		watermelon	5/15	6/10	36" x 60"	90	50 lb./ 50'	anthracnose, leaf spot		cantaloupe		5/15	6/10	30" x 48"	90	10 lb/ 25'			tomato	night-shade	5/15	5/15 - 6/1	18" x 36"	80	10 lb/ 10'	verticillium & fusarium wilt, nematodes, tobacco mosaic virus (V, F, N, T), early blight, cuc. mosaic, leaf spot, fruitworm, hornworm, potato beetle, spider mite	petunia, nicotiana, nierembergia, datura	pepper	5/15	5/20 - 6/1	18" x 30"	75	6 lb/ 10'			eggplant	5/15	5/20 - 6/1	18" x 30"	70	10 lb/ 10'			potato		4/15 - 6/1	12" x 30"	90	10 lb/ 10'			carrot	umbel		4/20 - 7/1	2" x 15"	65	10 lb/ 10'	parsley worm (black swallowtail btrfly)	parsley, Qu Ann Lc, dill, celery, bishops weed	celery		4/20	12"	90	1 head			sweet potato	morning glory		6/1	12" x 30"	115	10 lb/ 10'	wilt, nematodes, scurf, pox, stink bugs	morning glory	okra	mallow		5/20	12" x 36"	60	10 lb/ 10'	Japanese beetle	hibiscus, hollyhock	corn	grass	5/10	5/10 - 6/2	10" x 30"	80	5 doz/ 50'	corn earworm, borer	grasses
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lettuce, leaf-head	daisy	4/15	4/15 - 8/10	4" x 12"	45	5 lb/ 10'	aphids, slugs, cutworm	daisy, aster, Joe Pye, <i>Liatris</i> , many																																																																																																																																																																																																												
spinach	goosefoot		4/1 - 6/1	12" x 18"	70	1 head/ 1'		beets, chard																																																																																																																																																																																																												
squash	cucurbit	5/15	6/15	3 x 18"	50	10 lb/ 25'	aphids, harlequin bug	wild cucumber																																																																																																																																																																																																												
cuke/ zucchini		5/10	5/20 - 6/15	36" x 60"	90	10 lb/ 10'	squash bug, squash vine borer,																																																																																																																																																																																																													
pumpkin			5/20 - 6/15	12" x 48"	60	15 lb/ 10'	mildew, cucumber mosaic, wilt, scab, cucumber beetle																																																																																																																																																																																																													
watermelon		5/15	6/10	36" x 60"	90	50 lb./ 50'	anthracnose, leaf spot																																																																																																																																																																																																													
cantaloupe		5/15	6/10	30" x 48"	90	10 lb/ 25'																																																																																																																																																																																																														
tomato	night-shade	5/15	5/15 - 6/1	18" x 36"	80	10 lb/ 10'	verticillium & fusarium wilt, nematodes, tobacco mosaic virus (V, F, N, T), early blight, cuc. mosaic, leaf spot, fruitworm, hornworm, potato beetle, spider mite	petunia, nicotiana, nierembergia, datura																																																																																																																																																																																																												
pepper		5/15	5/20 - 6/1	18" x 30"	75	6 lb/ 10'																																																																																																																																																																																																														
eggplant		5/15	5/20 - 6/1	18" x 30"	70	10 lb/ 10'																																																																																																																																																																																																														
potato			4/15 - 6/1	12" x 30"	90	10 lb/ 10'																																																																																																																																																																																																														
carrot	umbel		4/20 - 7/1	2" x 15"	65	10 lb/ 10'	parsley worm (black swallowtail btrfly)	parsley, Qu Ann Lc, dill, celery, bishops weed																																																																																																																																																																																																												
celery			4/20	12"	90	1 head																																																																																																																																																																																																														
sweet potato	morning glory		6/1	12" x 30"	115	10 lb/ 10'	wilt, nematodes, scurf, pox, stink bugs	morning glory																																																																																																																																																																																																												
okra	mallow		5/20	12" x 36"	60	10 lb/ 10'	Japanese beetle	hibiscus, hollyhock																																																																																																																																																																																																												
corn	grass	5/10	5/10 - 6/2	10" x 30"	80	5 doz/ 50'	corn earworm, borer	grasses																																																																																																																																																																																																												
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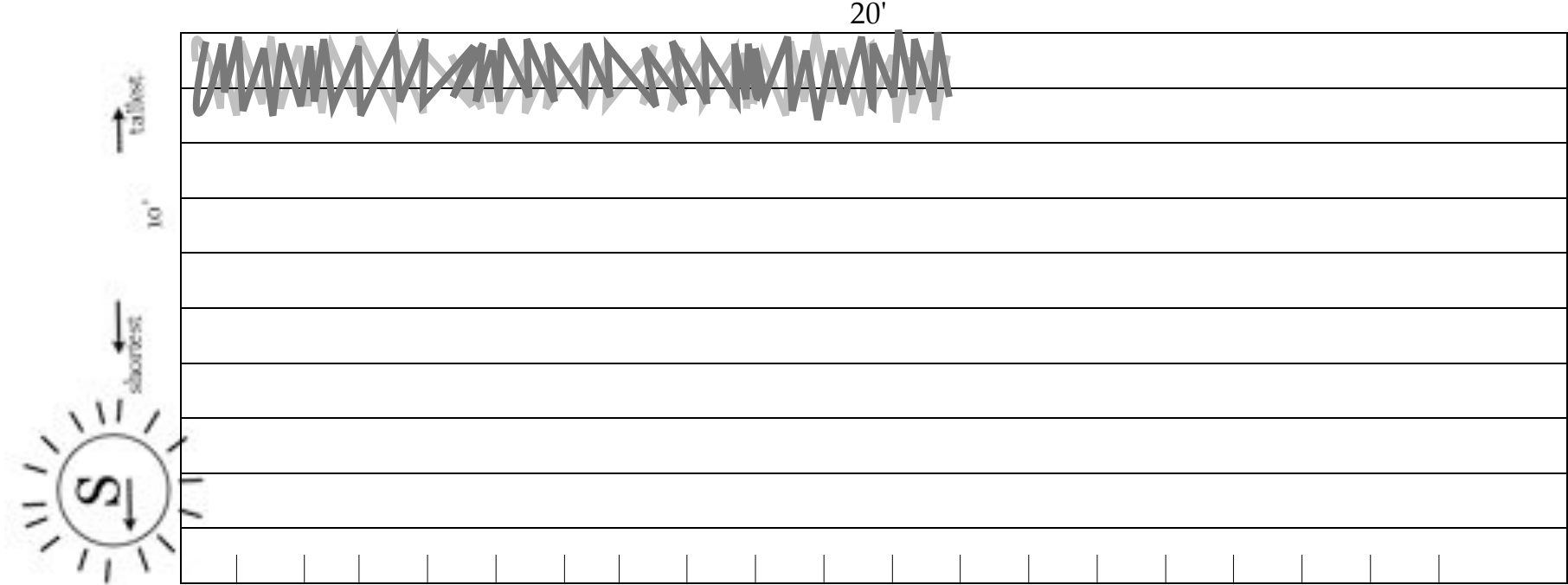






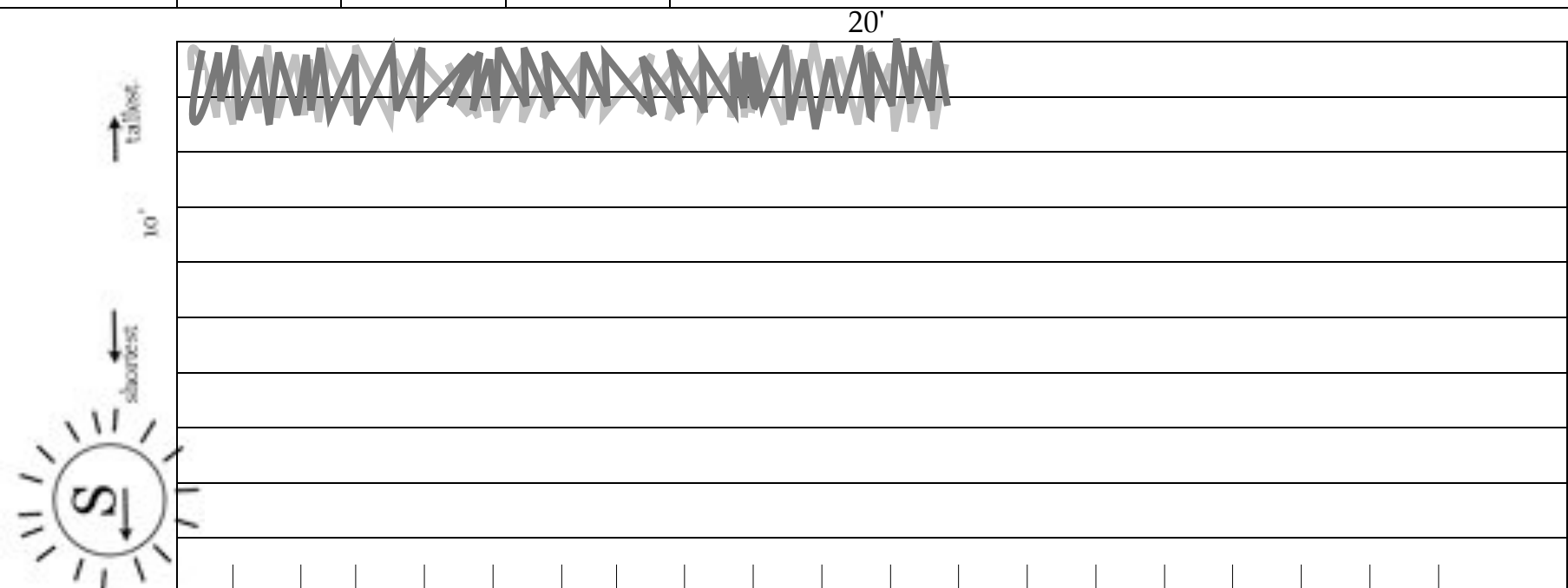


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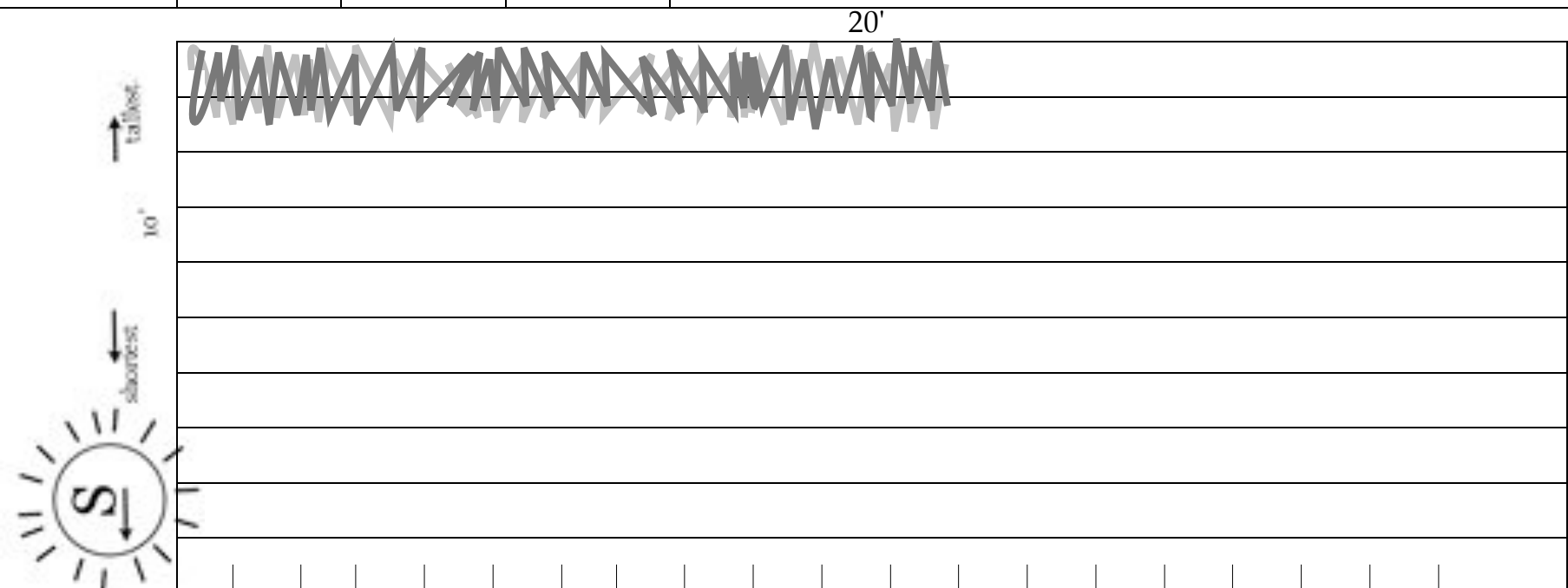




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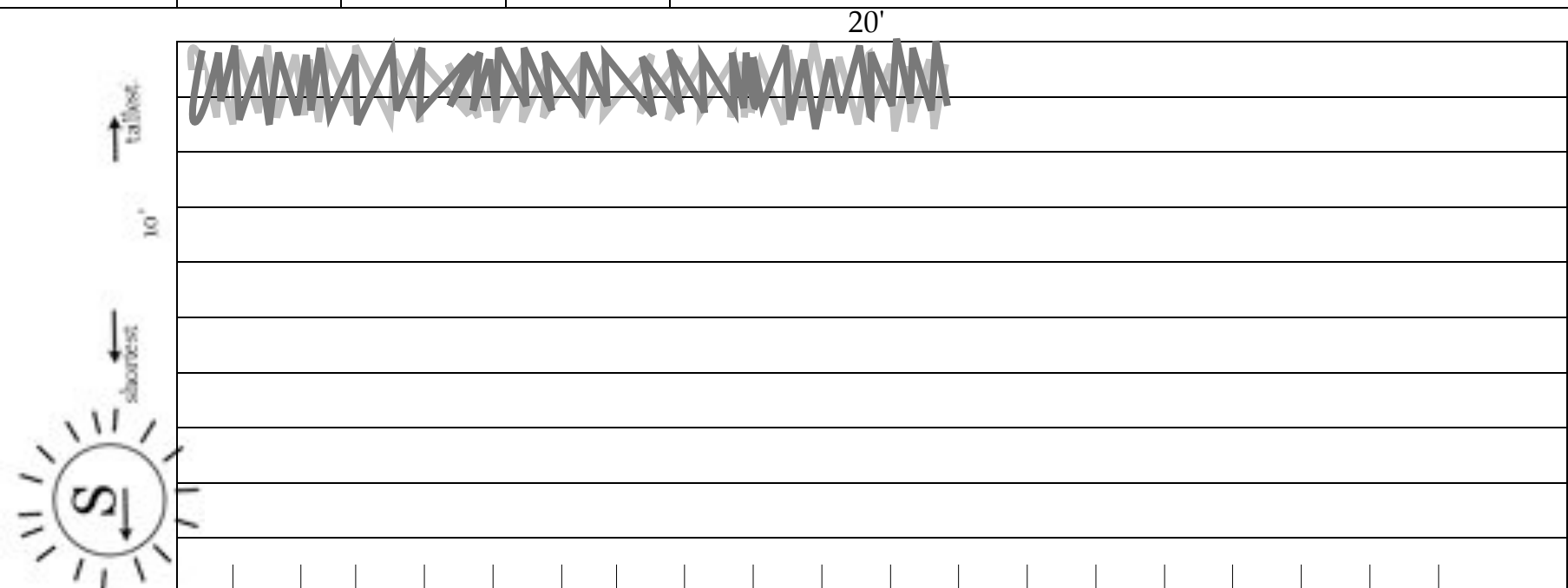


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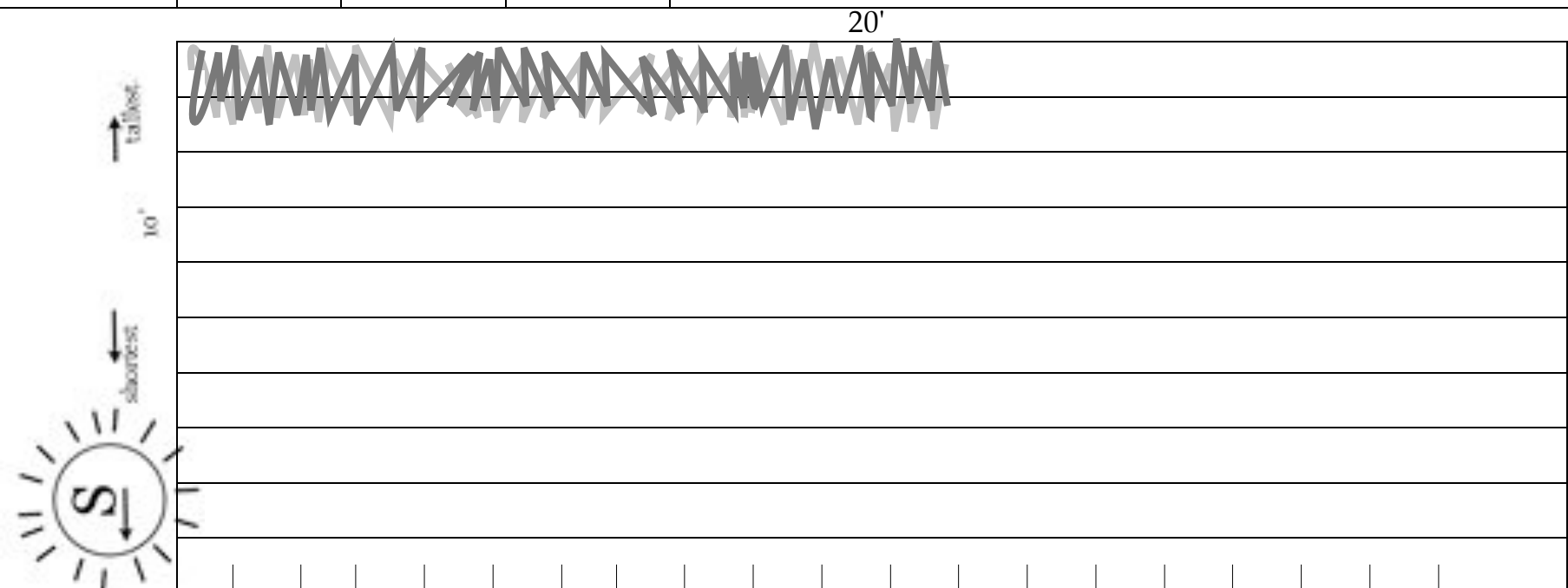




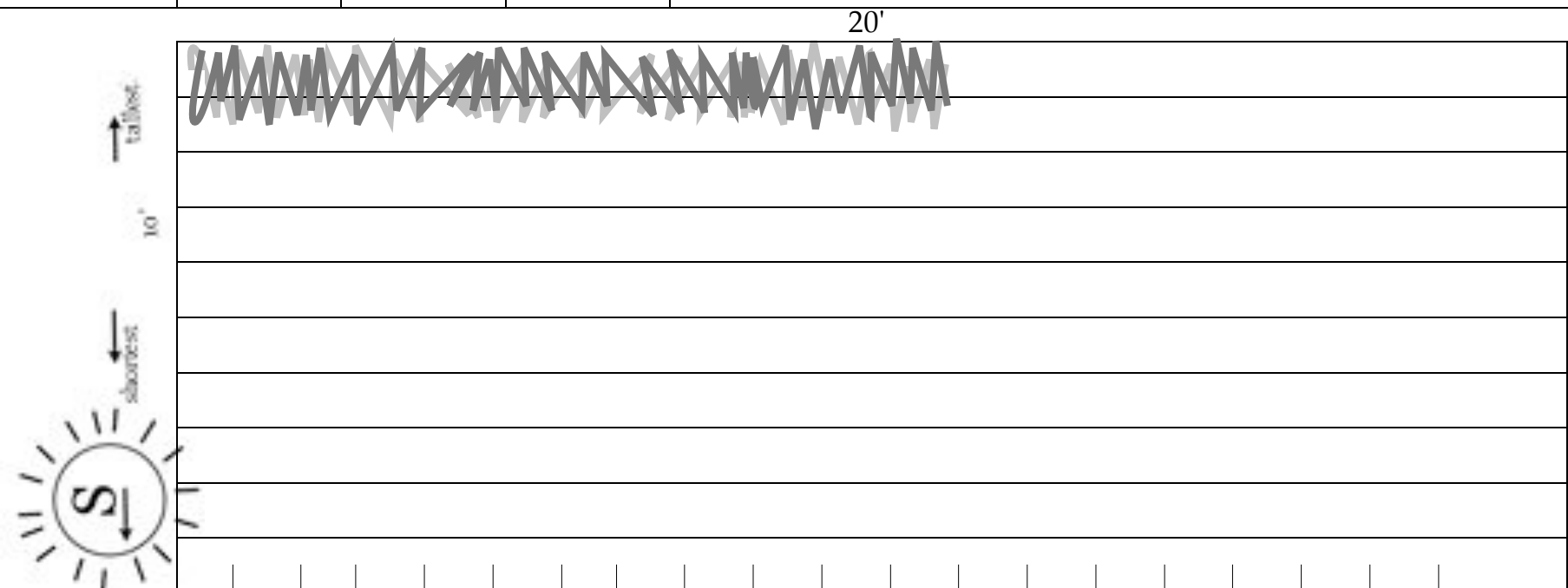
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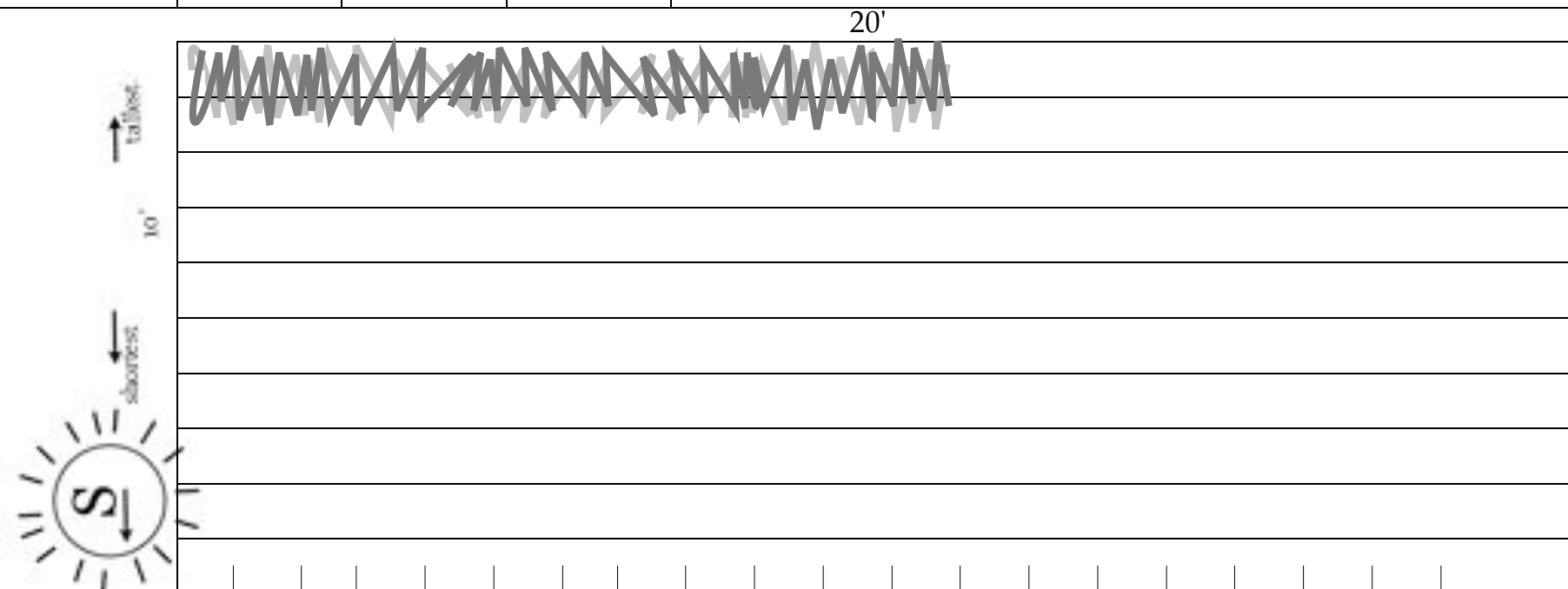


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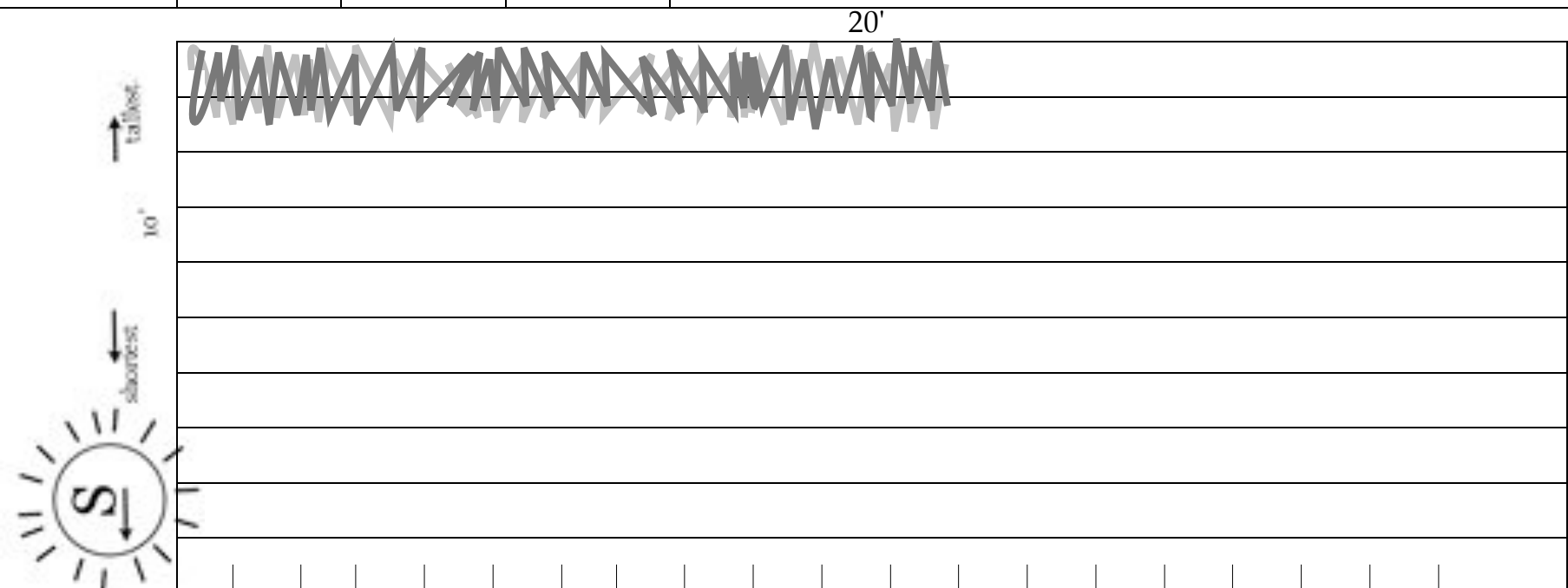




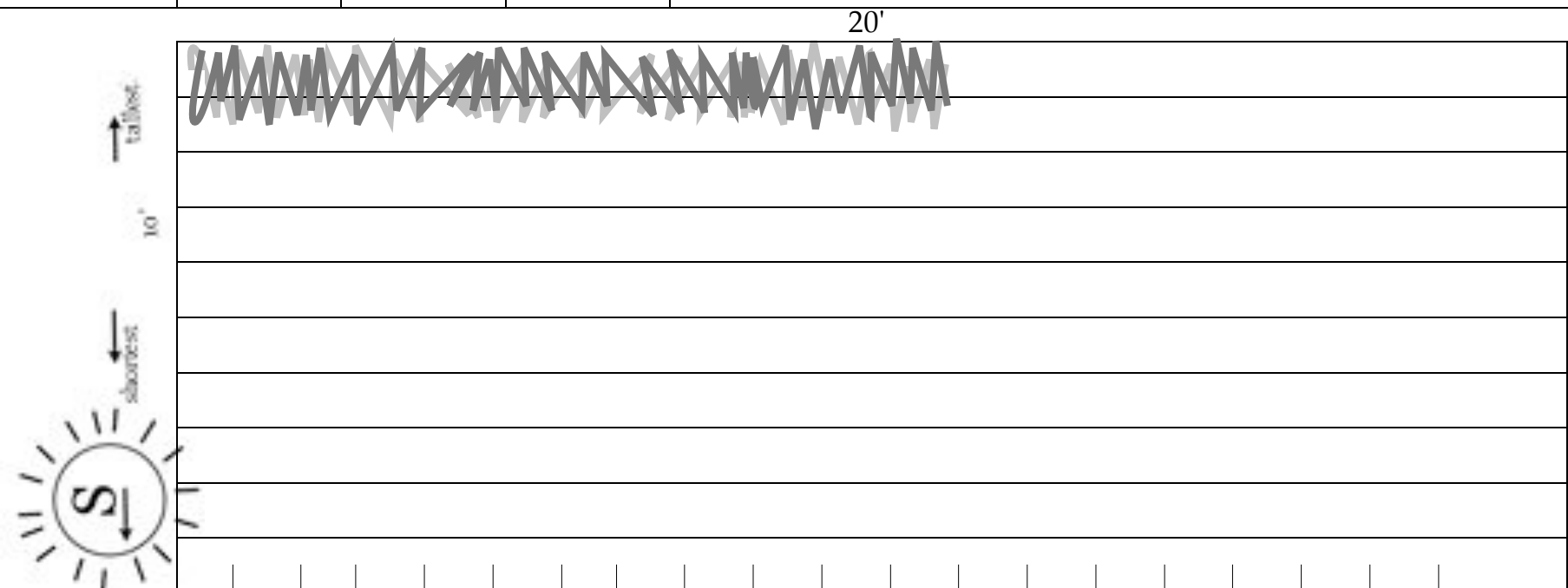
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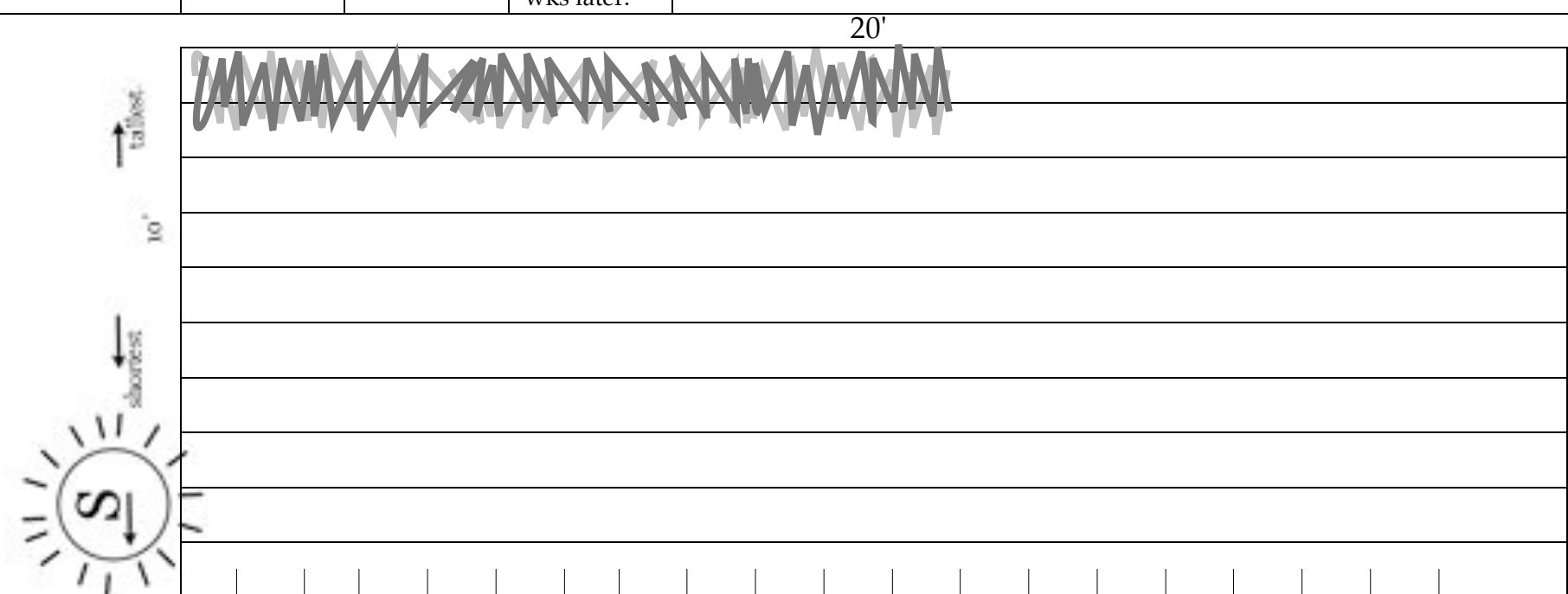
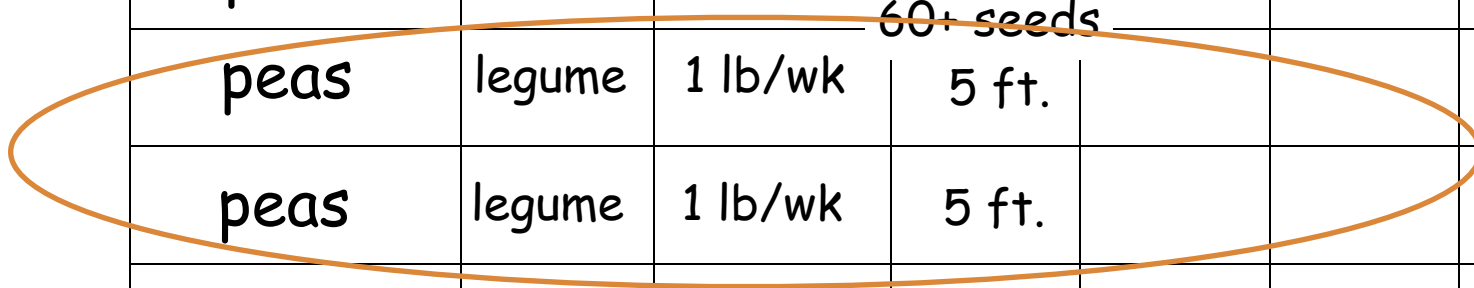


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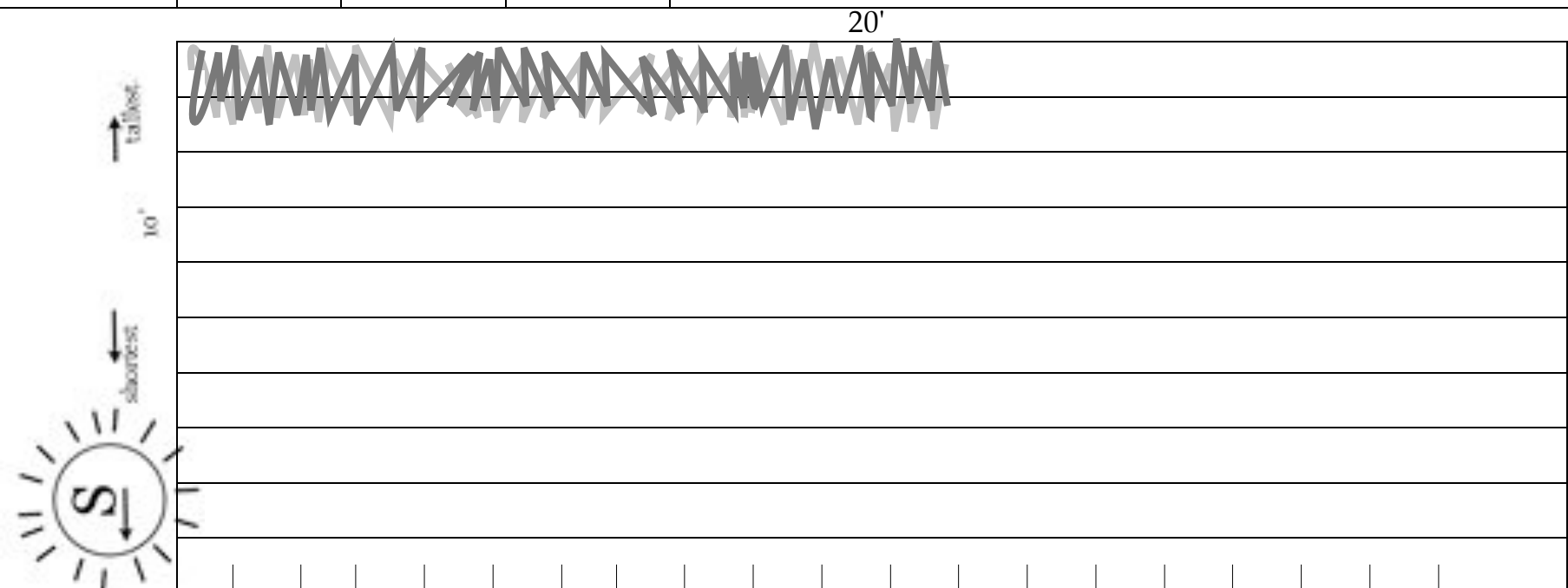




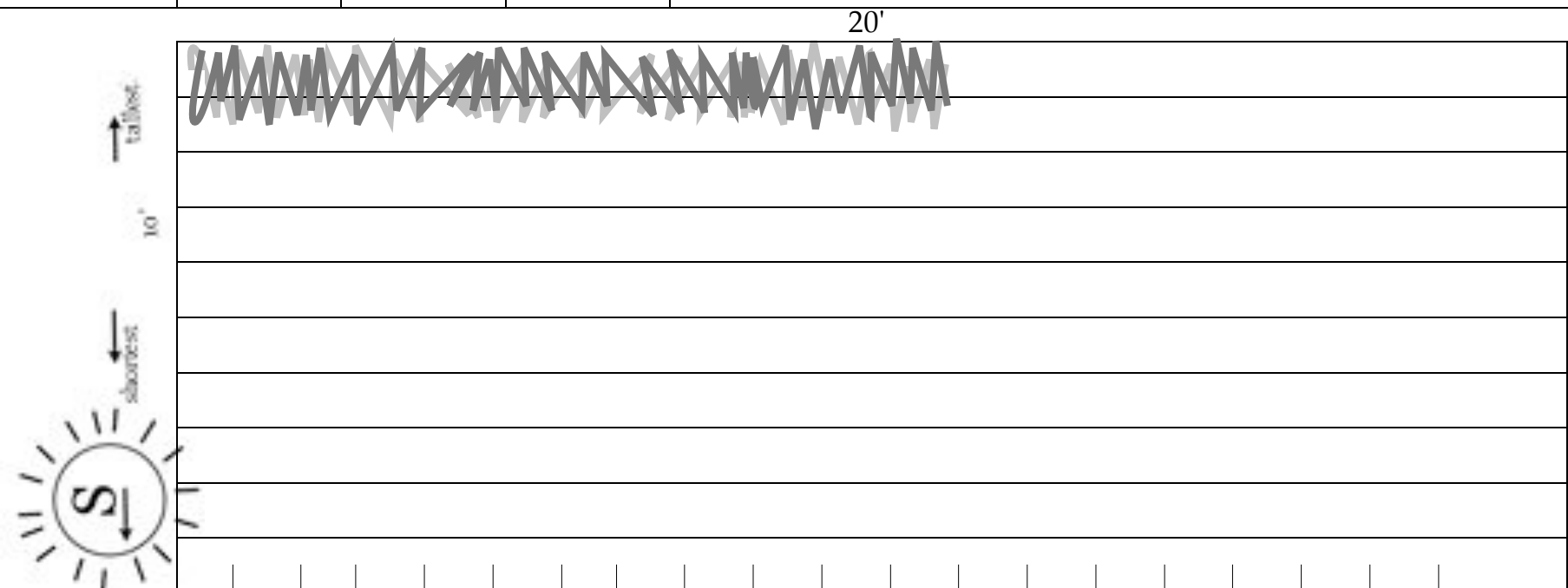
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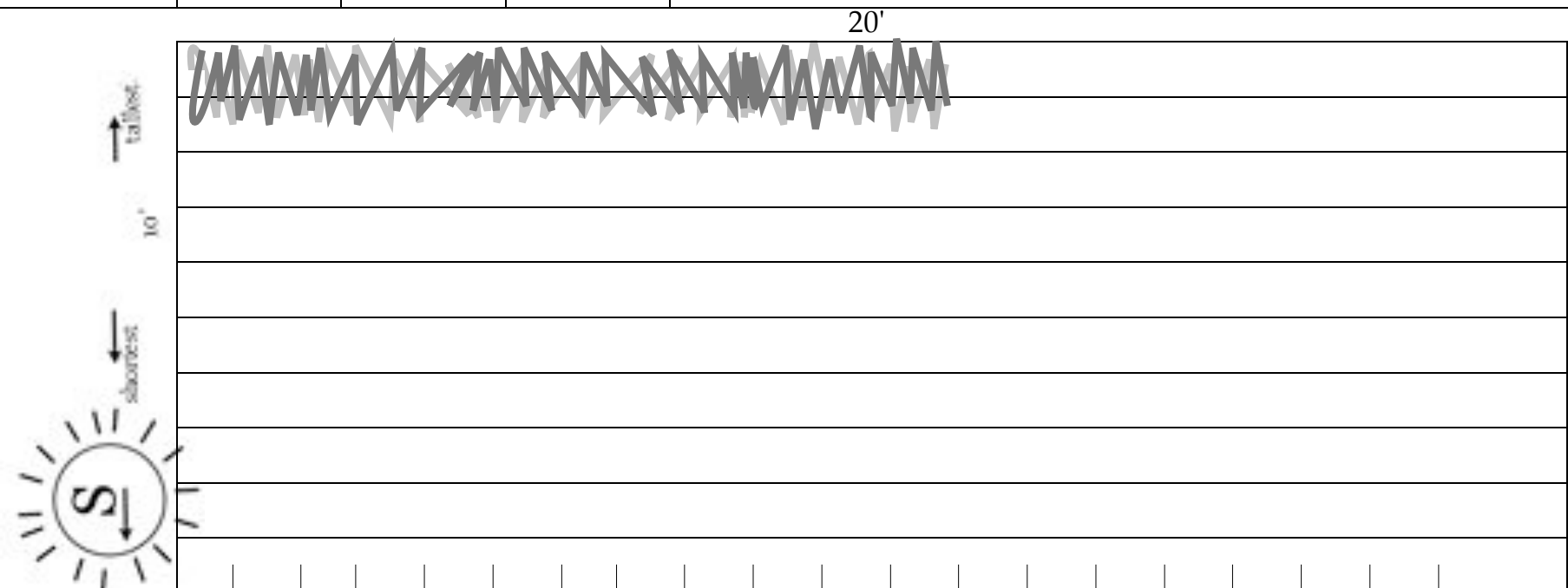


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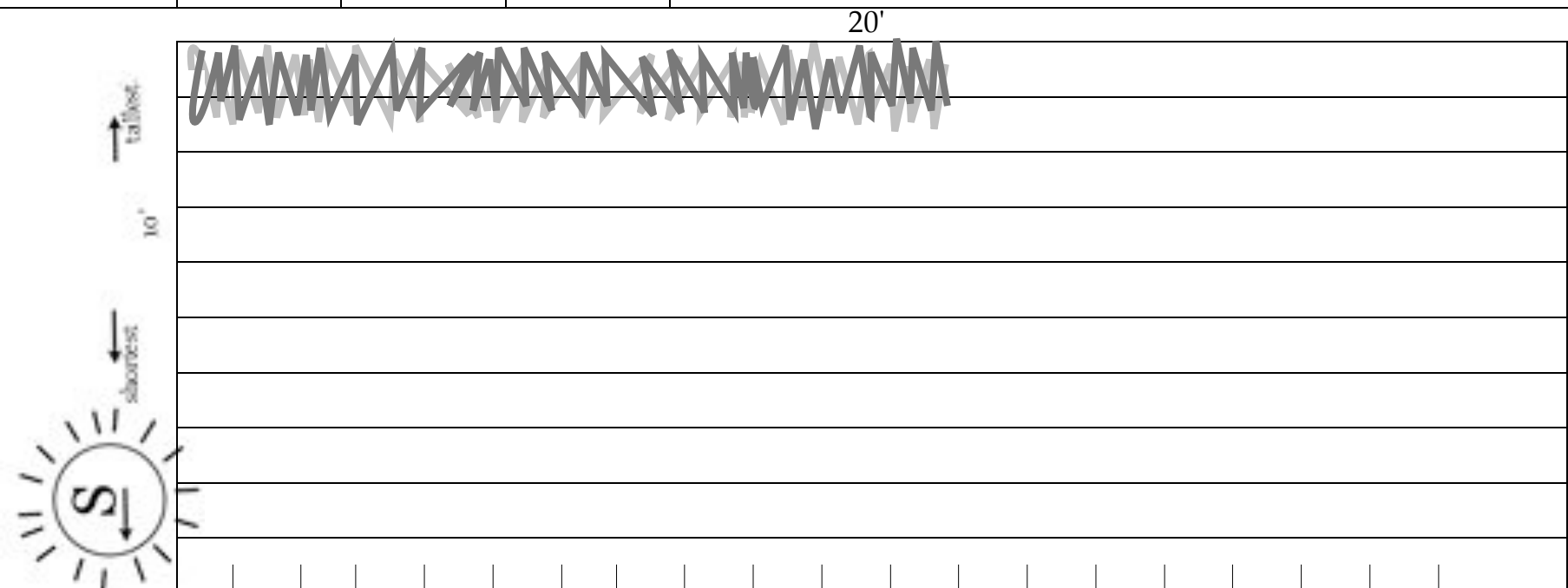




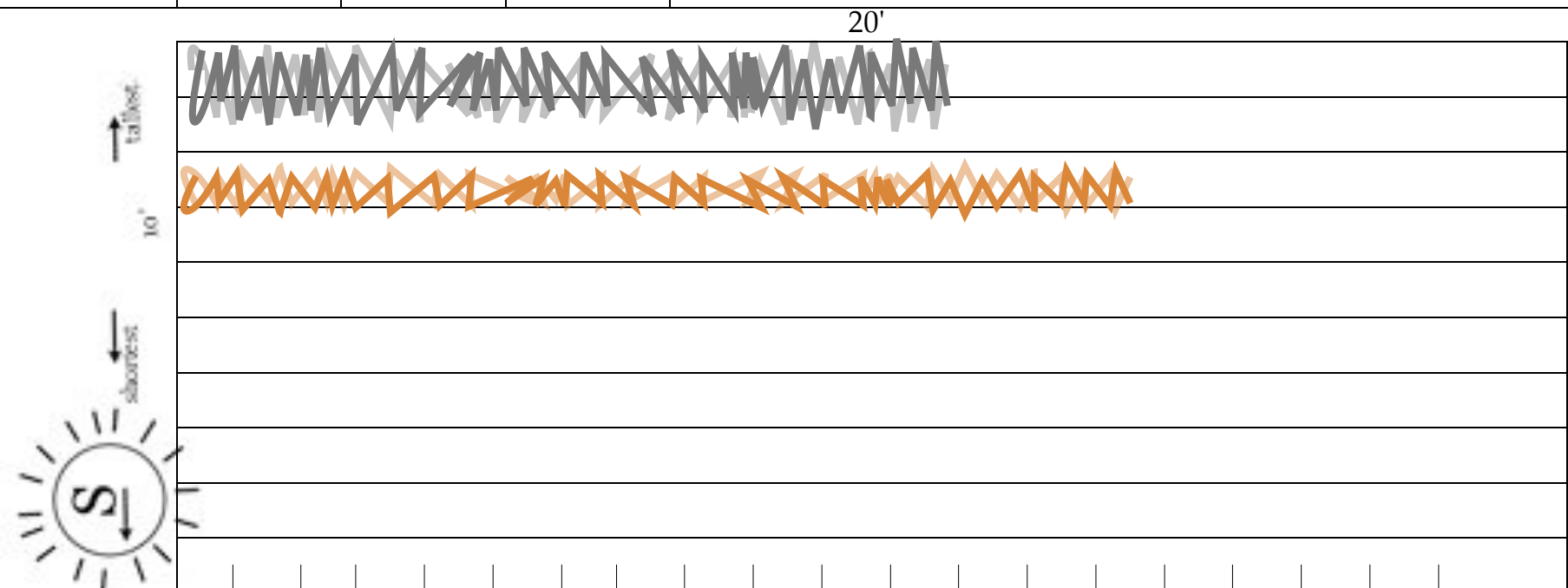
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## Try it: Plan a Garden!

### Choose your crops (Assuming a site good for any)

1. What will you / your family eat?

2. Will you graze a little at a time or do you want a big harvest?

For a little at a time: Select a variety AND a quantity

Serious harvest: Select a few, make sure you have a plan

Check the chart: How long a row of each crop

Plants needed to provide listed pounds

3. Rotate crops

Have these plants been grown in that group before?

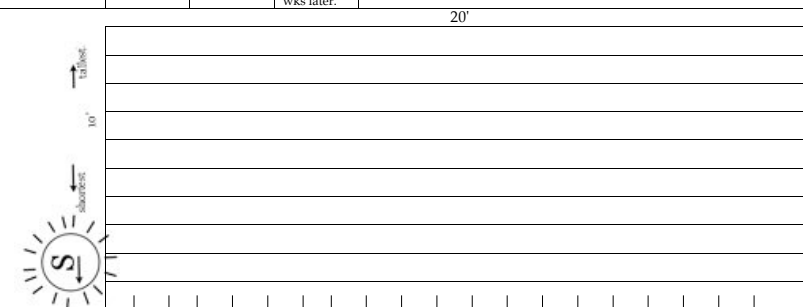
Check the chart: What family is the plant?

Is there room to place a repeat plant where you want?

#### Choice annual edibles: May

crop	family	start seed in-doors
peas	legume	4/1
beans		5/1
broccoli	mustard	4/15
cauliflower		
cabbage		4/1
Brussels sprout		
radish		
turnip lf, root		
lettuce, leaf -head	daisy	4/15
spinach	goosefoot	
squash		5/15
cuke/zucchini	cucurbit	5/10
pumpkin		
waterm/cant		5/15
tomato		5/15
pepper	night-shade	5/15
eggplant		5/15
potato		
carrot	umbel	4/1
celery		
sweet potato	morning glory	
okra	mallow	
corn	grass	5/10

Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
	Col. 2 Family Separate family members w/ space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See Yield col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - Days to harvest col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.



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## Decide plants or seed

Seed is fun but not always inexpensive as it seems

- If sown where it will grow, you need to thin and to accept some loss
- If sown indoors: \$ can add up as you equip an indoor-growing area to start seed early

Plants: Don't buy until it's time to plant (April 1, April 15, May 15, June 10 -- "set out / sow" column 4)

## Choose varieties...

- Varieties that are **what you expect** and need
- Varieties that are **disease resistant**

... and healthy plants or seed

- Individual already-started plants should be **stocky, sturdy, pest free**
- Seed from a **reputable source** (Burpee, Ball, Cook's, Park's, Seed Savers Exchange, etc.)

Get the bed ready by your earliest plant-out date: \_\_\_\_\_

- Remove whatever is growing there, roots and all
- Loosen (don't pulverize) soil. Use a fork, not tiller; or tiller just once lightly
- Check how well water drains out of an 18" deep hole; raise bed if takes +12 hours
- Soil test done? Use the prescribed fertilizer. Or add a balanced complete slow release organic



# FREE advice and fun by email



What does this have to do with gardening?  
See this week's "What's Coming Up" issue #82

## What's Coming Up: Weekly free advice by email about perennials and much more from the author of the classic guide "Caring for Perennials"

Need to know what to do when  
in a perennial garden?

Have a pruning puzzle or  
worrisome weed?

Have some other garden problem  
but no sure solution?

Find the answer in:

### What's Coming Up

a free weekly e-newsletter from  
perennial and gardening expert  
Janet Macunovich and  
photographer Steven Nikkila.

**Spot the weaklings, then be tough on their spots**

Only a few plants in any garden are disease prone, and only some of those diseases are likely to spread and become serious if ignored. Here are some plants that that bear watching on both counts. Remove discolored foliage or stems as you see them on:

**Delphinium.** Pale leaves and what appear to be water-soaked splotches may be the first sign of one of several leaf spots and stem infections that eventually kill the plant. Even with special attention, these plants rarely live long where hot, humid summers encourage these diseases.

**Dogwood.** Spots on flower petals, infect leaves and twigs. Infected limbs develop "cankers" – diseased, depressed spots under the bark – which enlarge and eventually kill the branch.

**Peony.** Spots and streaks on leaves can spread to stems, then down into roots to become chronic infections that eventually even kill flower buds as they form in spring. A dead flower bud on a peony may give rise to a spot on a leaf, then this streak (right) on a stem that will go down to the root. Photo ©2009 Steven Nikkila

**Rose.** Black spot kills leaves, weakens the plant and reduces its flowering ability. As spots multiply they can infect stems, remain through winter and quickly infect the next year's foliage.

**Viburnum.** Spots on leaves can infect young twigs and persist as the twig becomes woody, weakening it and the plant for life.

As you deal with plant problems keep in mind that the world's best gardeners are not wonder-workers when it comes to disease and insect issues. They succeed by taking a simple outlook: If it's sickly even in a spot that provides all the species is supposed to need, get rid of it. There are more species worth growing than any gardener can grow in a lifetime, so don't waste time on those that can't cut it on your site.



**Bonus pages: Renovating a perennial bed**

This week I've been renovating perennial beds that had been bogged down with weeds and crowded with aggressive perennials. It's a good time to redesign, too. So I aimed to eliminate uncontrollable species, make adjustments to suit current growing conditions and add better behavior, clump-forming perennials.

If you've never renovated a perennial bed that's crowded, the line from maturity to wild, or done it only to be disappointed with the results, try this approach. It's served me well for many years.

In brief, I clear the bed, clean up the salvagable, worthy perennials, and replant. What I've written here may sound obsessive. I know because a reader we once had asked, "Is this a cult?" Nope! It's based on experience recognizing our common mistakes, the resurgent power of established plants and our desire to do it once and have it last.

First, cut back all perennial tops except tree evergreens. If you do renovations in fall you'll be able to level most of the work area and make it simpler to clear.

Then, slice off along one edge to make a clean division between the bed and its surrounding. If the bed already has in-ground edging, skip this step. That edge is the break.

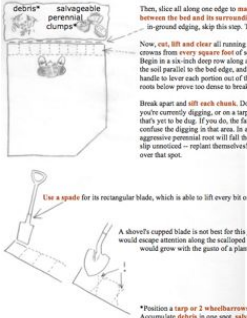
Now, cut, lift and clear all running roots, bulbs and perennial crowns from every square foot of soil in the bed. Begin in a six-inch deep row along a bed edge. Slice down into the soil parallel to the bed edge, and lean back on your spade handle to lever each portion out of the bed. Cut crosswise, too, if roots below prove too dense to break into 4" x 4" chunks.

Break apart and sift each chunk. Do this work over the row you're currently digging, or on a tarp. Don't work above ground that's yet to be dug. If you do, the fall-out of soil will confuse the digging in that area. In addition, sliced bits of weed aggressive perennial root will fall there that are small enough to slip unnoticed – replant themselves – into the soil as you dig over that spot.

Use a spade for its rectangular blade, which is able to lift every bit of soil.

A shovel's curved blade is not best for this job. Chunks (at the 1' below) would escape attention along the scalloped row. In them, root fragments would grow with the gusto of a plant freed from competition.

\*Position a tarp or 2 wheelbarrows close by. Accumulate debris in one spot, salvagable clumps of desirable perennials in another.



**What's Coming Up:**  
Janet Macunovich answers your growing concerns  
Issue 41, May 16, 2009

**Here you'll find:**

- Caring daylilies that shine, then slump, pages 1-2
- Finding uncommon plants, page 2
- Treasure the nursery with field-grown plants, pg. 3
- Utility easement clearance makes life hard for organic gardener, pages 3-6
- Sleuth with shovel: ID's buggy find, pages 6-7
- Whole U.S. can enjoy cicada song until 2011, page 8
- Great color in containers, pages 8-9
- Slugging it out biggest, most slimies, pages 9-10
- Clematis in shade: Small flowers shine, pages 10-11
- In my garden:
  - Watch for trouble, dash about, pp. 11-12
  - 45 mph hour garden features bi-color crabs, pg. 12
  - Weeding vs. herbicide, page 13
  - Who's Janet? How do I contact her? Page 13
  - Where to catch Janet in person, page 13
- 'Coke Plate' daylily has a big, beautiful flower. Don't let that be your only selection criteria. Visit it in summer to assess its leaf, too.

Photos ©2009 Steven Nikkila



**Remedies for cheerful daylily with sad leaves**

We had a number of sad daylilies from a perennial bed in the rose garden at Meadowbrook Hall last year. The foliage is yellowed and brown. We would like healthy green foliage for the whole summer this year. Suggestions? Can daylilies get too much fertilizer? Thanks. - Lynn -

Daylilies can be over-fertilized. Lynn, and then they might brown out. Yet the yellowing and browning we most often see is from any of several leaf diseases that plague daylilies. These diseases are cosmetic problems, not killers. ("Just try to kill a daylily" is an in-jest challenge I've heard from gardeners making the point "You can't.") To cure the ugliness, you can enjoy the flowers and simply mow the plants down after they bloom. The plants will be fine and grow back in by late summer. In the meanwhile, empty space and clean regrowth are easier on the eye than the alternative.



**Geraniums from offsets.**  
Also, the roots of some geraniums produce eyes. Eyes can sprout on the roots, making shoots that develop into new plants at a little distance from the original crown.

**To divide a geranium:**

- separate a rooted offset from its parent,
- break off a root plus the new plant it's produced, or
- clip off a root with eyes and plant it on its own with its upper end at or just below the surface.

Most geraniums have roots like the species known as bloody cranesbill (*Geranium sanguineum*, above). The plants move of themselves by both offsets and running roots. Notice the bumps on the roots – each one capable of sprouting to produce a stem. Photo ©2009 Steven Nikkila

When you first start to look at roots the mass may be confusing even when a portion is rinsed of soil as in the previous picture. The drawing at left was made from that photo to highlight just the two parts of the crown indicated by the arrows. They are a mother plant (brown) which was able to produce enough starch to develop a fine root system of its own plus a daughter offset (red). The daughter has done well for itself, too, as indicated by its well-developed roots.

Plants don't know math. Divided, they are often bigger than ever. Take four or five sections from an older plant, put one-quarter back in the ground, and the remaining shoots fill out with greater gusto than when they were more crowded. So, simply quartered in spring, the original plant may seem unchanged or even larger by summer, and each of its divisions may match it in size that first year.



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## Plan now to avoid vegetable pests

The easiest control is to stay ahead of those buggers!

This page really, really [needs a sprout!](#)

So we're looking now at last year's problems -- what happened when -- to schedule what to do when to prevent trouble.

(Have a mystery of your own to solve? [Post it here](#) at the Forum for diagnosis -- if you are not yet a Forum member, register as a Member first. It's free and simple.)

Below, clockwise from top left: Celery heart rot, asparagus beetle, powdery mildew on squash, and damage from squash vine borer.





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Seasonal push checklist

## It's what's deep down that counts

### Sledging rocks for veggies' sake

Last week we helped dig to make a vegetable garden in a back yard in Guelph, Ontario. A tough situation with several [possible solutions](#), all followed by [our answer](#), and [the resulting fix](#). With an [August report](#) on how it came out.

#### The situation

The gardener had stripped off the sod, dug in to check the drainage and become discouraged after finding a rocky layer about ten inches down.

Plants don't mind rocks but when we investigated we found crushed rock compressed into a tight cap (below, right between the two blue lines) over better soil below.

*Below: Compare the condition of the top soil (left side of the frame) and what's below the rock (right side). The topsoil is floury -- lacking pores to help it absorb water, drain, and allow air to reach roots. It's grey, meaning it has little organic matter in it to entice soil animals and microorganisms that might push its minerals into a better condition.*

*The soil that's been beneath the rock (right side of the frame) is crumbly so it is better aerated and drained. It's dark, an indication of organic matter content. It is the better stuff for an aspiring organic gardener to provide to the indigenous soil building organisms!*



This is a rocky story but it has a good ending, here being pressed into a layer of composted manure!



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Choice annual edibles: Michigan (SE: ave. 185-195 day growing season, ave. last frost 5/12, first freeze 10/9, 1.5" to 3" rain per month)

crop	family	start seed in-doors	set out/sow, for summer crop - fall crop	spacing between plants x rows	days to harvest	yield per row of given length	problems	ornam. relatives
peas	legume	4/1	4/1 - 5/15	1" x 8"	70	5 lb/ 25'	mildew, wilt, pea curculio	sweet pea, locust tree, baptisia, true clover, peanut
beans		5/1	5/10 7/4	2" x 24"	55	30 lb/ 25' pole, more	leaf spot, aphids, bean beetle	
broccoli cauliflower	mustard	4/ 15	4/15 7/1	12" x 24"	70	20 lb/ 10'	flea beetle (leaf, early), aphids, cabbage looper, cabbage maggot	kale, collards, rock cress, candy tuft,
cabbage Brussels sprout								
radish								
turnip lf, root								
lettuce, leaf -head	daisy							
spinach	goosefoot							
squash								
cuke/zucchini	arbit							

Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes

## Try it: Plan a Garden!

### Choose your crops (Assuming a site good for any)

1. What will you/your family eat?  
For a little at a time: Select  
Serious harvest: Select a 1  
Check the chart: How  
Plants needed to prov
2. Will you graze a little at a time or do you want  
For a little at a time: Select  
Serious harvest: Select a 1  
Check the chart: How  
Plants needed to prov
3. Rotate crops  
Have these plants been g  
Check the chart: What fa  
Is there room to place a r

### Decide plants or seed

- Seed is fun but not always is
- If sown where it will grow
  - If sown indoors: \$ can

Plants: Don't buy until it's ti

### Choose varieties...

- Varieties that are what
- Varieties that are **disease resistant**

... and healthy plants or seed

- Individual already-started plants should be **stocky, sturdy, pest free**
- Seed from a **reputable source** (Burpee, Ball, Cook's, Park's, Seed Savers Exchange, etc.)

Get the bed ready by your earliest plant-out date: \_\_\_\_\_

- Remove whatever is growing there, roots and all
- Loosen (don't pulverize) soil. Use a fork, not tiller; or tiller just once lightly
- Check how well water drains out of an 18" deep hole; raise bed if takes +12 hours
- Soil test done? Use the prescribed fertilizer. Or add a balanced complete slow release organic

# Plants (Seed): Local garden centers and farmers' markets

# Seed: Mail order









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[« Back to: Tomato Varieties](#)

## Hawaiian Pineapple

**Tomato Type:** Heirloom

**Breed:** Open Pollinated

**Season:** Late

**Leaf Type:** Normal

**Plant Type:** Indeterminate

**Plant Height:** 6 ft.

**Fruit Size:** 14 oz.

**Fruit Shape:** Beefsteak

**Skin Color:** Orange

**Flesh Color:** Bi-color



Photo by Peter Hitzsche, County Agricultural Agent

[Enlarge Image](#)

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heirloom tomatoes  
mini eggplant  
various kales  
special onions (the flat one!)

Pontiac/Royal Oak  
Farmers' Markets  
Marlene/George Uhlianuk,  
of Coon Creek Farms  
Prielipp Farm  
Korean Veg  
Don Vanhoutte

greens queen!  
arugula  
fancy lettuces



Margaret Thele





greens queen!  
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fancy lettuces



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Birmingham Farmers' Market  
Sunday Farm Market at Goldner  
Walsh Nursery





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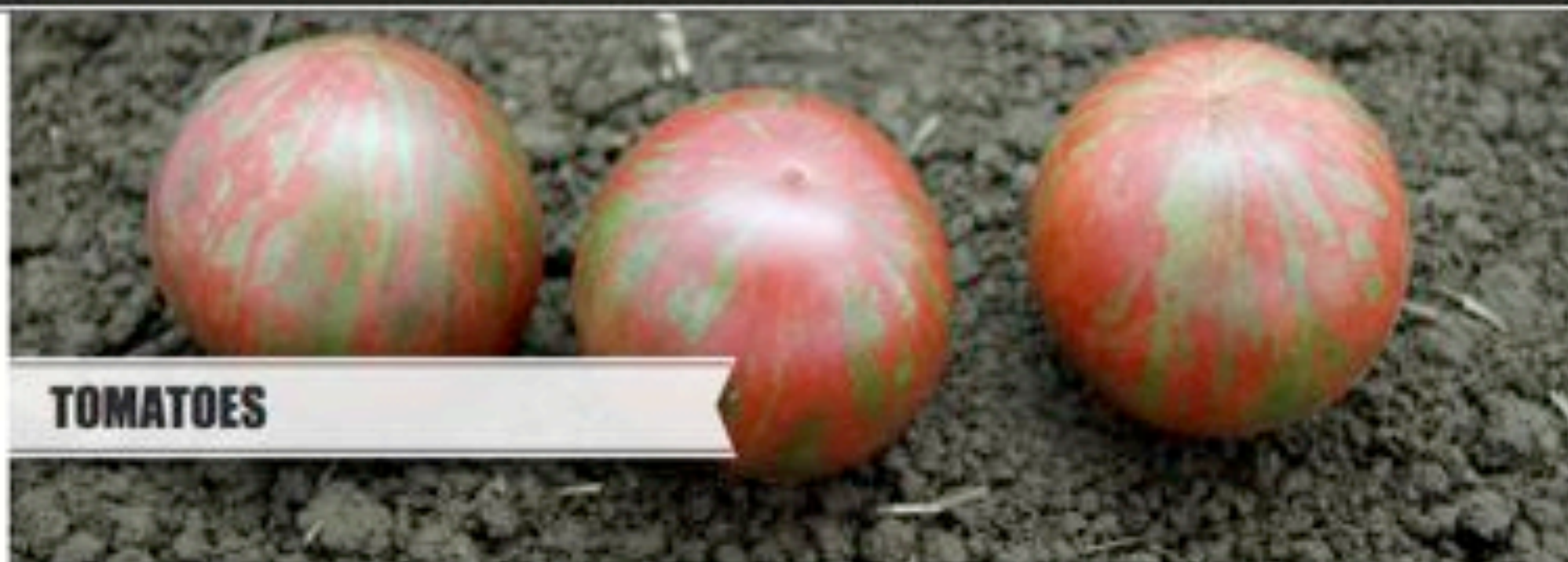
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### TOMATOES

Green  
Orange  
Pink  
Purple  
Red  
Striped  
Wild Boar Farms  
White  
Yellow

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### TOMATOES

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(*Lycopersicon lycopersicum*) This crop, native to the Americas, has become the most popular garden crop over the last 200 years. We offer an amazing selection of many of the finest old varieties in lots of delicious colors! A few heirloom varieties have plants that don't get quite so large. Called "determinate" varieties, these get to a certain size and then set all their fruit more or less at once. Determinates may be a better choice where tomatoes are grown in a very small garden, or in containers. All varieties are believed to be "indeterminate" (long vines), unless specified "determinate" (short vines). The best tasting varieties tend to be indeterminate, as most of ours are unless otherwise noted.





# rareseeds

BAKER CREEK HEIRLOOM SEEDS



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Brandywine Tomato



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### Product

Arkansas Traveler  
Tomato (25 seeds)  
(TK108)

### Quantity

### Price

\$2.50

Packaging Type: NA

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## Arkansas Traveler Tomato



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80 days. A medium-sized pink tomato that is smooth and a beautiful rose color. An excellent variety from Arkansas, tolerant to heat and humidity; crack and disease resistant. Good flavor, an excellent hillbilly favorite.



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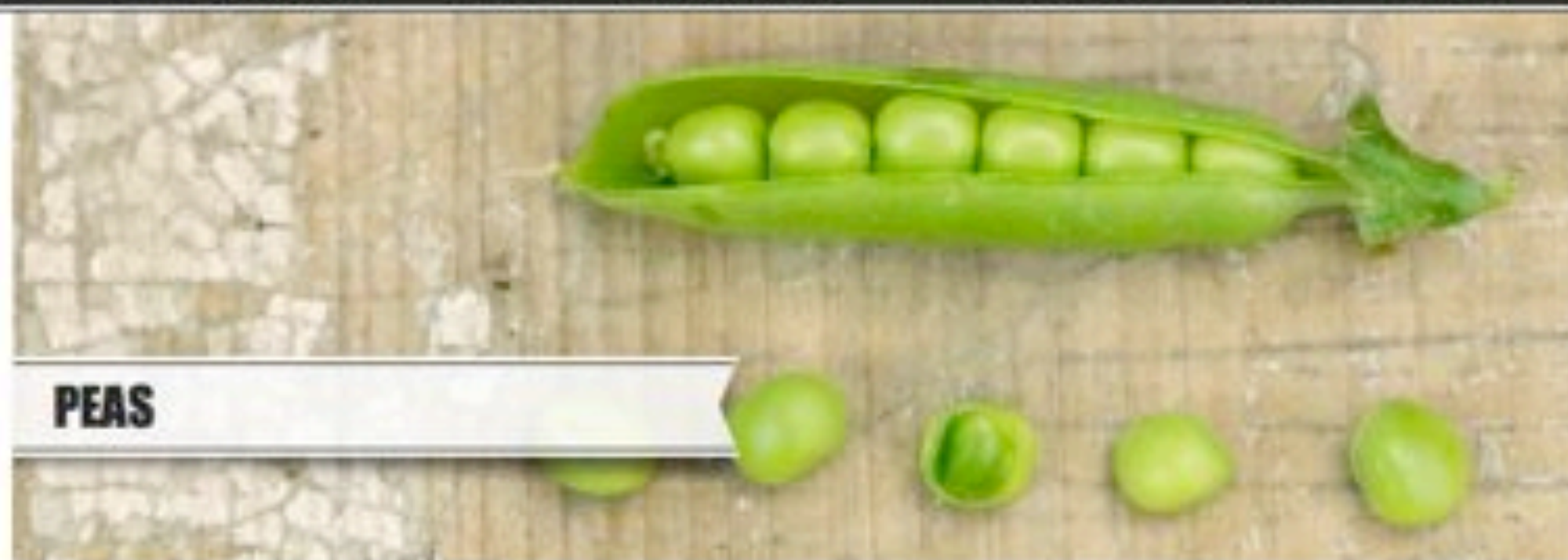
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(*Pisum sativum*) Whether grown for green peas, or for edible pods, garden peas are all grown the same way. They should be planted in earliest spring or even in late winter, as soon as soil can be worked. They require a very mellow soil, as the roots are shallow and not especially vigorous. Plant about 1" deep. Most types require support—a trellis, fence, etc. (Bush types are really short vines, and will support each other when planted fairly close together.) The trick is to get them going early enough to take a crop before late spring weather turns really warm, as heat shuts the plants down. Pick edible podded types frequently, as they are best before the pods become tough.

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## Red Pear Piriform

Product ID: 2768

Superb flavor.

Pear shaped, 7-8 oz. Fruits with ribbed shoulders. Old fashioned, juicy, sweet flavor. Harvest when shoulders are still green. From Liguria, Piedmonte, and Abruzzo regions of Italy. Indeterminate. Avg. 130,000 seeds/lb. Packet: 40 seeds.



### GROWING INFORMATION

Tomatoes



#### DETERMINATE:

(bush) varieties do not need pruning and may be grown with or without support; fruit ripens within a concentrated time period.

#### INDETERMINATE:

(climbing) varieties should be staked, trellised, or caged, and pruned for best results; fruit ripens over an extended period. Call for additional cultural tips.

[VIEW MORE GROWING INFORMATION >](#)

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### Quick Facts

Latin Name: *Solanum lycopersicum*

Days to Maturity or Bloom: 75

Plant Cycle: (A)

Product Symbol:



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#### ACONDAGUA PEPPER (HEIRLOOM)

Argentinian HEIRLOOM This very large pepper plant is named after a mountain in Argentina where it originated. Plants can grow close to 3 feet in height and probably need to be supported as the fruit set is very heavy. Fruit can come close to a foot in length and ripen from green to orange to red. They have great flavor for fresh use at any stage of maturity and are great for roasting when fully mature. 20 seeds. [Learn More](#)

\$1.35

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This Dutch hybrid is used exclusively for producing those attractive baby carrots that command such a premium price at the market. An early, cylindrical, bright orange, conical carrot that grows to about 3 1/2 inches for harvest. Adelaide will retain its remarkable sweet flavor for quite a while. Use raw in salads, for pickling, and in stir-fries. 200 seeds. [Learn More](#)

\$1.25

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**8107-AUNTIE'S RED PEAR**

Developed in the 1960s and introduced by Dr. Tom Hays of the University of Maryland, this variety is a late-season, indeterminate, 5-6' plant. It produces large, ribbed, pear-shaped fruits that weigh 1-2 lbs. The fruit is red with a yellowish-green base. It is a very productive variety, yielding 11,000 lbs./acre. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8104-AUNTIE'S RED PEAR GREEN**

Family heirloom from Ruth Hays of Cleveland, Tennessee. Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8105-AUNTIE'S RED PEAR**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8106-BLACK SEA MAN**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8108-BLONDIE POWER**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8109-BRANDYWINE**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8110-BRANDYWINE**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8111-BLACK CHERRY**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8112-BRANDYWINE**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8113-CHERRY BOMB**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8114-BLACK FROM TINA**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8115-BLACK KIM**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8116-BLACK PINE**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8117-CHERRY BOMB**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8118-CHERRY BOMB**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.

**8119-CHERRY BOMB**

Introduced in 1988 by Dr. Tom Hays of the University of Maryland. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity. It is a very late season variety, taking 110 days from transplant to maturity.



## HOW TO HAND POLLINATE SQUASH

Squash is hand pollinated because two varieties within the same species must be prevented from crossing in order to save pure seed. The main Cucurbita species are: *C. maxima*, *C. ergyptena*, *C. moschata*, and *C. pepo*. Members of the Cucurbitaceae family often outcross because they rely on insects for pollination because plants are monoecious, having separate male and female flowers. During the process of hand pollination, pollen from a male flower is transferred to a female flower of the same variety. If male and female flowers from the same plant are used for hand pollination, the process is known as **selfing**. Plants are generally "selfed" when seed purity is in question or when selecting for specific traits. When male and female flowers are taken from different plants of the same variety, this is referred to as **siking**, and results in a greater degree of genetic diversity.



**1** Differentiate male and female blossoms - female blossoms (right) sit atop a small, immature fruit (ovary), while male blossoms are attached only to a straight stem (above).



**3** The next morning, after the dew has dried, pick the male flower with as much stem as possible. Remove the flower from the male flower so you are left with a "pinhead-sized" piece. Next, pinch off the pistil of the female flower just below where it is tied. Hold the pistil from the male flower by its stem like a brush and gently rub pollen onto each section of the stigma of the female flower. Work quickly so bees do not interfere with the pollen.

**2** Identify blossoms that are about to open, they will begin to blush with color along the stems and very tip. The top of the blossom may begin to look open. The maturing flower also becomes slightly puffed and softer to the touch than a flower that is still green and too immature. Flowers that have already opened are withered and should not be used. Search for flowers in the afternoon, and find three male flowers for every female flower. The females are tied shut and the males are sealed with masking tape.



**4** Tape the female flower closed and tie a marker around its neck, a piece of yarn or plastic surveyor's ribbon. Choose what information is important to write on this flagging (date, variety, etc.). Continue to monitor the success of your fruit as it grows and matures.

For more seed saving resources go to [seedstarters.org/education](http://seedstarters.org/education)





## HOW TO SAVE TOMATO SEEDS

Tomatoes are a great way for beginner seed savers to get started. They are good for beginners for three reasons: you can harvest them for seed at the same time you harvest them for eating; they don't easily cross-pollinate, and you only need to save seed from fruits on a few different plants. Of course there are exceptions to every guideline, so take care to note if there is any change from year to year. Harvest seed from the healthiest and best fruits. Here are a few tips for processing your tomato seed:



- 1** Cut tomatoes open—use variety at a time—and separate the pulp, juice, and seeds into a glass or plastic container.



- 3** Viable tomato seeds will sink to the bottom of the container. Pour off pulpy mixture on top, and then

- 2** Set the container aside to ferment, this breaks down the gelatinous coating on the seed that prevents it from germinating. Fermentation can happen in 24 hours to 4 days, during this time a layer of mold may form across the top.



- 4** Spread the seeds out thinly on surface to dry. Any substrate to help them dry as quickly as possible will work: coffee filter, paper plate, glass or ceramic plate, or wax paper. It is best to dry seeds out of direct sunlight. Drying could take up to 4 weeks.

For more seed saving resources go to [seedsavers.org/education](http://seedsavers.org/education)







systems. *Journal of Management Education*, 25, 74-84.

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John Deere's 4000 Series, the company's best-selling model, is expected to be introduced in 1999. The company's 4000 Series is expected to be introduced in 1999. The company's 4000 Series is expected to be introduced in 1999.



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*Escherichia coli* O157 and other serotypes associated with outbreaks of EHEC have been shown to possess a specific toxin gene, *stx*. This gene encodes a toxin known as Shiga toxin (Stx) and is responsible for the production of



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Developed in the late 1990s by James Clark of University Microfilms, International, the database is a rich digital trove of maps, crop reports, census records, and more, all from the United States before 1900. The site is available for purchase by individual records or by subscription.



1000

**2014-2015 Black Point**  
 Russian Salmon from Washington  
 Alaska Fisheries, Oct 2 2pm - 5pm  
 halibut, with gillnet and fish. Address  
 by phone early school supply sale  
 information. 40 days from harvest  
 of 1,000 pounds. Some you could buy  
 you with 1000 - you with 1000  
 including 100000



Source: *Author's calculations*.

[illegible]





Crop	family	Amount you want	Space needed	Desired harvest date	Start date	Special seed-starting and plant-finding notes
	Col. 2 Family Separate family members w/space and years!	1 lb. spinach = 1 x-large bag; 1/4 lb. string beans/serving; 1 big head broccoli 1/2 lb.	See Yield col. 7	Be reasonable. May be multiples.	Seeds: Harvest date - Days to harvest col. 6; Plants: 4 wks later.	Margaret Thele, <a href="http://SageAdviceNursery.com">http://SageAdviceNursery.com</a> Pontiac Farm Mkt.

