



**“ ...I have great faith in a seed.
Convince me that you have a seed
there, and I am prepared to expect
wonders.”**

- Henry David Thoreau



Sprouting a Miracle

**Starting and Growing Your Own
Seedlings**

Why?

When?

How?

Why?

- **Cost**
- **Variety**
- **Fun!**

Cost



1 packet of seeds = 50 plants

1 packet = \$2.50

$\$2.50/50 = \$.05/\text{plant}$

1 6-pack = \$1.50

$\$1.50/6 = \$.25/\text{plant}$

Variety



- **Better flavor**
- **Better production**
- **Better growth habit**
- **Better colors**
- **Earlier harvest**
- **Better adapted**

Fun!

**A universe of plant possibilities:
colorful, flavorful, beautiful**



- **Purple cauliflower**
- **Mache, arugula, endive**
- **Peppers - sweet to screechingly hot**
- **Green, Striped, even 'Black' tomatoes**
- **Unexpected varieties**
 - Okra & Artichokes**
 - Yard-long beans & Purple peas**
 - Peanuts & Rice**

When?



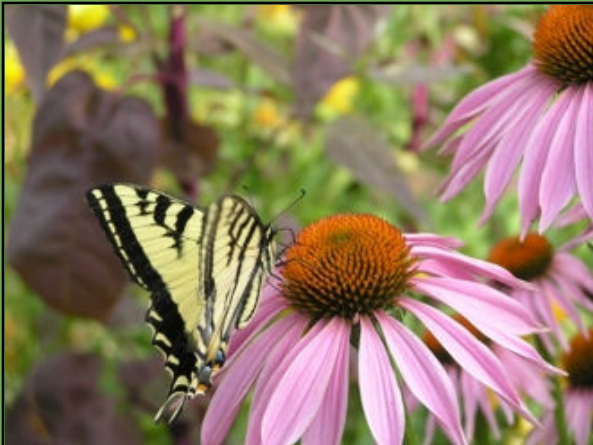
- **Cultural requirements of seeds**
- **Timing for planting outside**

Cultural Requirements

- **Does it do best when direct sown?**

Experience

Packet or catalog instructions



Growing Information: Beans, Pole

CULTURE: PLANTING: Grow pole beans on trellises or large mesh fencing, 4-pole tepees, or single poles. Sow seeds 1" deep, spaced 3" apart in rows 4' apart after soil temperature exceeds 60°F (16°C). If using poles, plant 7 seeds at the base of each pole. **LARGE PLANTINGS:** Drill a single row of seeds on open ground or through black plastic mulch 3 seeds/hole 8" apart using our Easy-Plant jab-type planter (see Accessories). Thin to 2 plants per hole. Place fence posts 8-10' apart, and support a 9-gauge galvanized wire at the top. With twine, lash trellis to the wire (or zigzag our natural sisal trellis twine between the top wire and a bottom twine). Anchor bottom of trellis with stakes or hoops of 9-gauge wire. Refer to Index for planters, Hortonova Trellis, sisal twine, and mulch. **DISEASES, INSECTS, HARVEST, STORAGE:** see Bush Beans. **AVG. SEEDING RATE:** 225' row or 130 poles/lb. **SEED SPECS:** **SEEDS/LB.:** 700-1,400 (avg. 900). **PACKET:** 1 oz. (avg. 55 seeds, sows 14' or 8 poles).

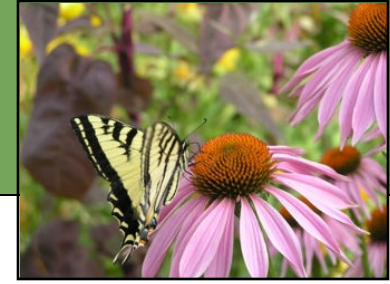
Easy Choice

Variety is easy-to-grow.

Performs well in greenhouses

Variety does especially well when started in, or grown in, a greenhouse environment.

- **Will it self-sow?**
- **How much 'lead-time' does it need**



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Timing

- **Determine plant-out date**
 - Soil temp**
 - Frost danger**
- **Determine optimal indoor growing time**
 - Some plants 2-3 weeks**
 - Others 10-12 weeks**
- **Count backwards from planting date to determine when to start indoors**

On a calendar

For example: Tomatoes, 6-8 weeks, planting date: late May

2010

January

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

February

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

March

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

April

S	M	T	W	T	F	S
					1	2
					3	
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

May

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

June

S	M	T	W	T	F	S
						1
						2
						3
						4
						5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

July

S	M	T	W	T	F	S
						1
						2
						3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

August

S	M	T	W	T	F	S
						1
						2
						3
						4
						5
						6
						7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

September

S	M	T	W	T	F	S
						1
						2
						3
						4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

October

S	M	T	W	T	F	S
						1
						2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

November

S	M	T	W	T	F	S
						1
						2
						3
						4
						5
						6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

December

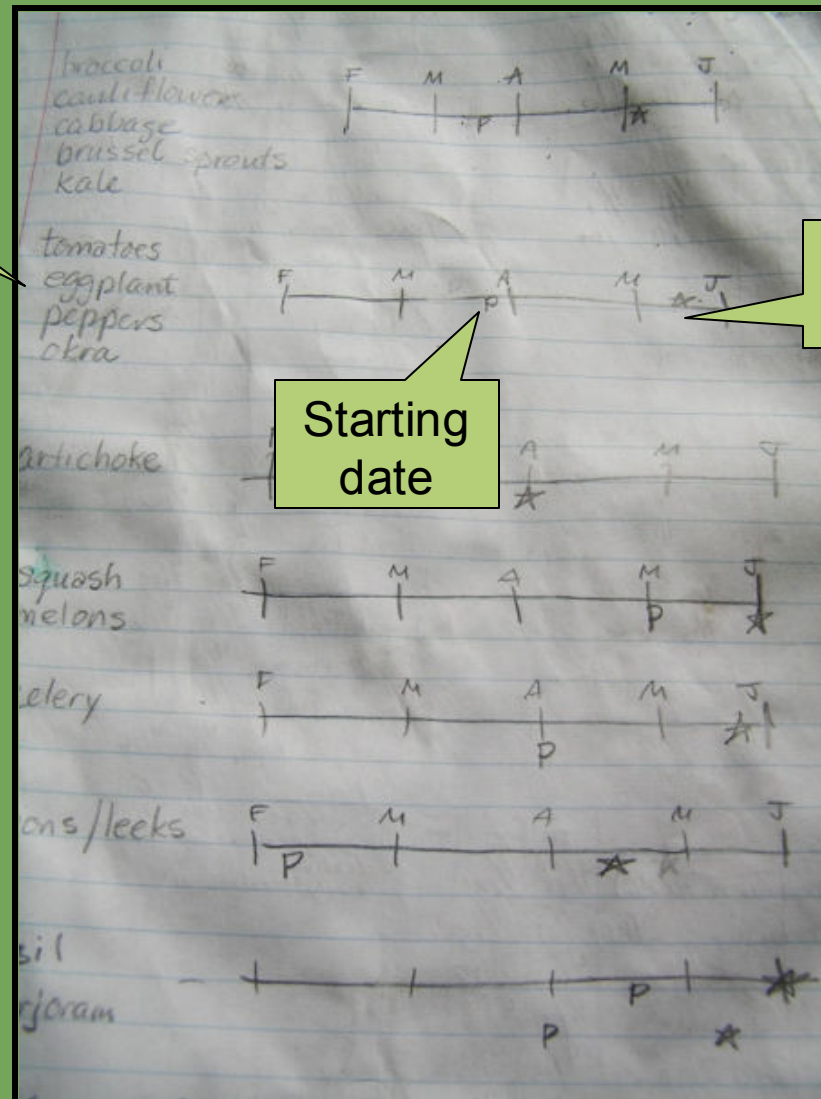
S	M	T	W	T	F	S
						1
						2
						3
						4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
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Or in your garden notebook

Plant group

Planting date

Starting date



How?

5 basic requirements

- **Good seeds**
- **Good light**
- **Good 'soil'**
- **Proper watering**
- **Sense of adventure!**

“Bad seed is a robbery of the worst kind: for your pocket-book not only suffers by it, but your preparations are lost and a season passes away unimproved.” - George Washington

Good Seeds



Good Seeds



- **No other factor can compensate for seeds that are not strong and vigorous.**
- **Few things more frustrating than putting in all the time and effort only to find out that the seeds were not viable.**
- **If you have any concerns about seed viability, do a germination test.**

Quick and Dirty

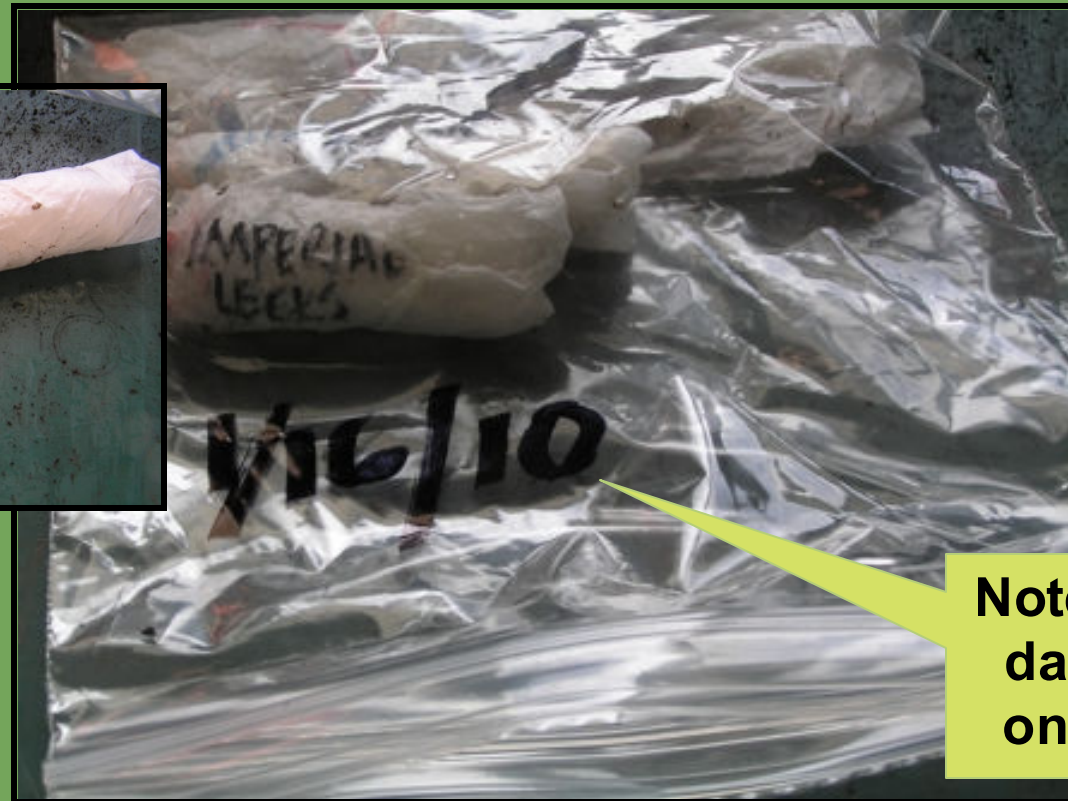
Germination Test

- 1. Label paper towel, then dampen**
- 2. Count out 10 seeds and place on towel**



3. Roll up paper towel with seeds inside

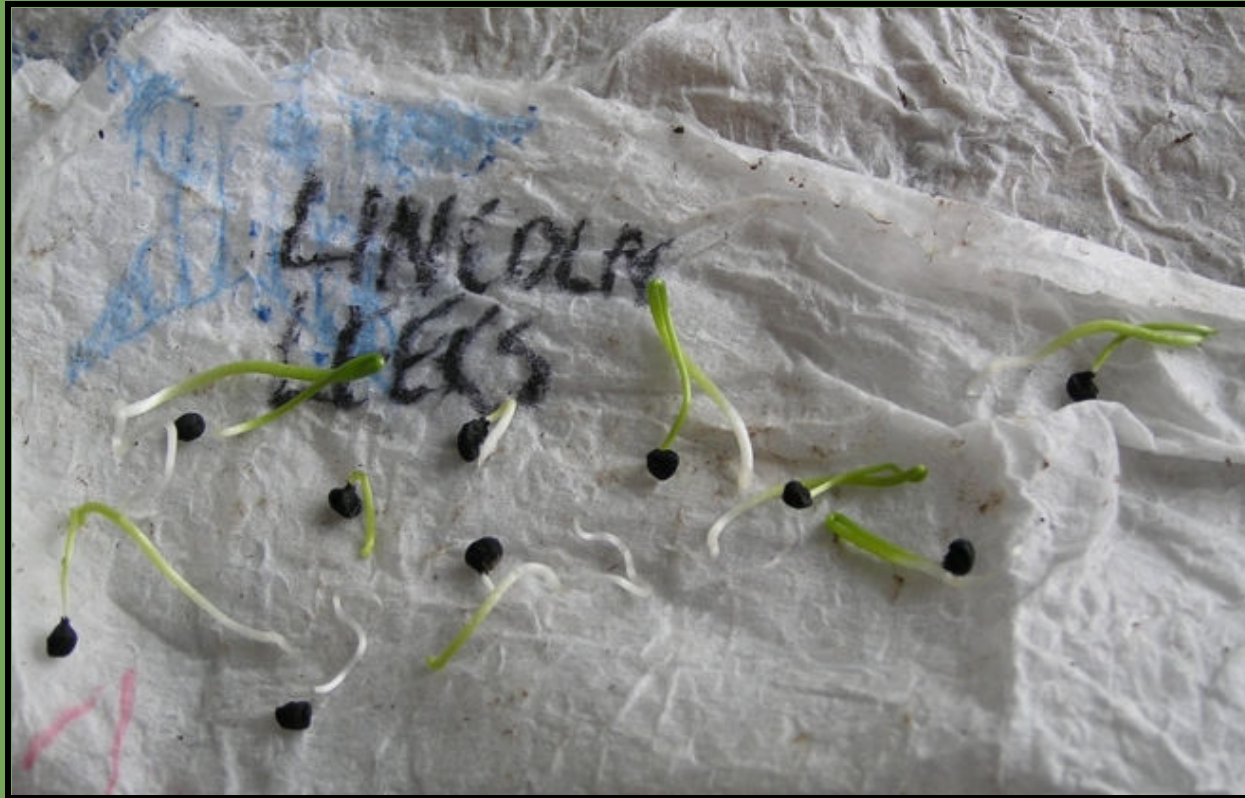
4. Place inside an unsealed plastic bag



**Note that
date is
on bag**

5. Place in a warm spot (not over 85 degrees)

6. Check every other day for 1-2 weeks (or longer if germination time is lengthy)



7. Calculate germination percentage

of germinated seeds x 10 = germ. %

$$\mathbf{3 \times 10 = 30\%}$$

8. Adjust sowing rate if germ rate <70%

Good Light



**“In the right light, at the right time,
everything is extraordinary.” - Aaron Rose**

Good Light

- **Essential for strong, sturdy seedlings**
- **Promotes vigorous but compact growth (a big bonus for windy Idaho)**



- **Bright, sunny window not sufficient (sorry, Allen Wilson!)**
- **Fluorescent lights are easy solution**
Full spectrum lights cost c. 10x more
Not significantly better results



My system

Simple unit made of cedar fencing

- **Plans available**

Standard fluorescent lights

- **Keep 2-3" above seedlings**
- **Replace every other year**

Timer is handy

- **16-18 hours on**
- **6-8 hours off**



Good 'Soil'



Good Planting Medium

(aka Potting Soil)

Use any good, light, soil-less planting mix

- light texture encourages sprouts to push up to the surface**
- holds generous amounts of water**
- doesn't harbor harmful bacteria**

Good Planting Medium



**Garden soil is inferior to soil-less mixes
for starting seedlings**

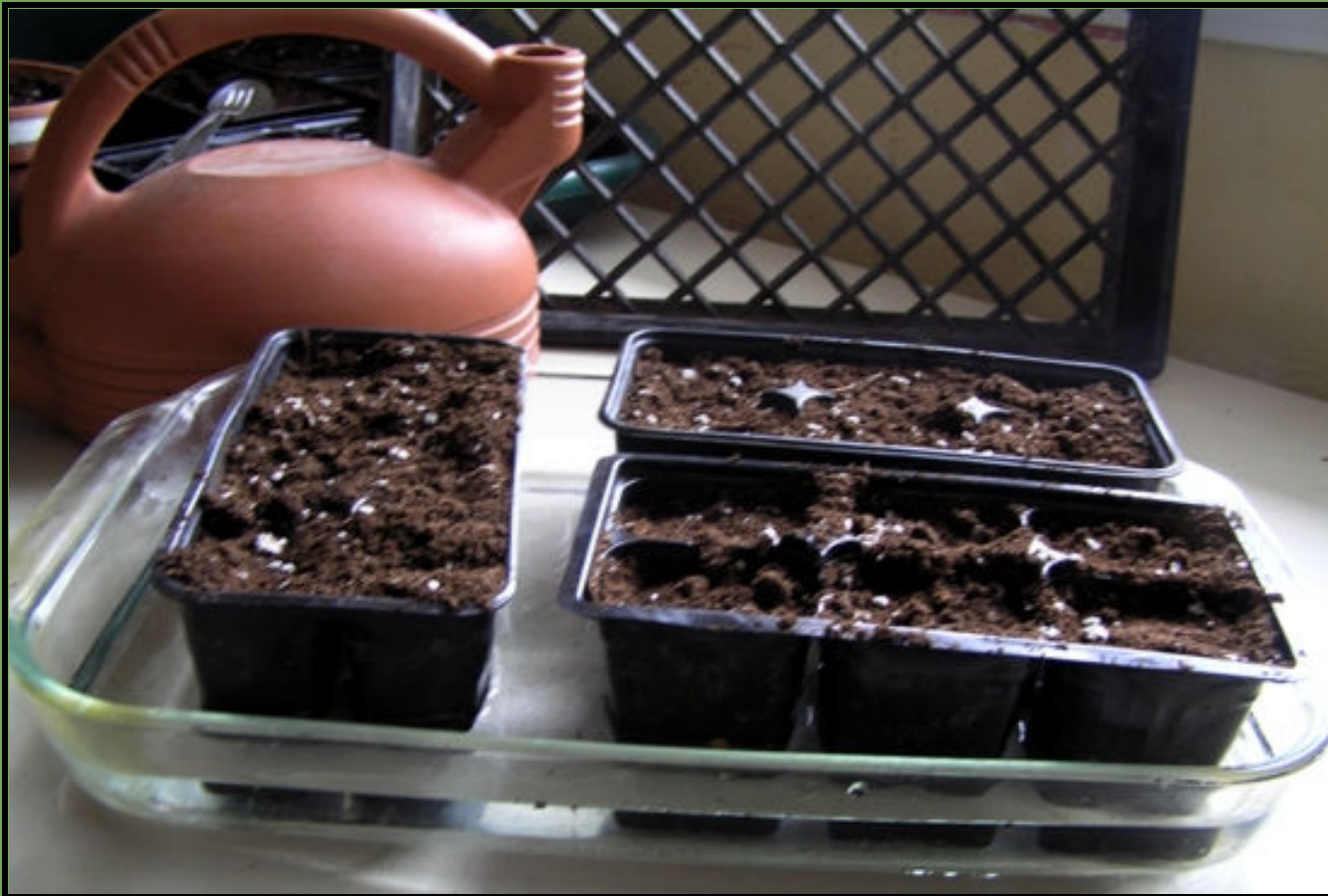
Sources for Potting Soil

Local nurseries - especially ones that grow up their own seedlings

Talk with local gardeners - see what national brands they use

Remember that you usually get what you pay for!

Proper Watering



“Keep them wet enough but not too wet.”



Perhaps most challenging issue

- **Soil should be consistently moist but not at all soggy**
- **Too little water better than too much**
 - **if leaves are beginning to droop or look dull it is a sign that the roots are dry**
 - **either extreme - too wet or too dry - will stress the plants and produce a weaker seedling**

Why Bottom Water?



- **avoids wetting the leaves**
- **assures even and thorough watering of the planting medium**
- **needs to be done less frequently★**

★ **frequency will increase as plants grow and transpire more**

Bottom Watering procedure



- **Use any flat container that meets your needs**
- **2"- 4" of un-softened water**
- **Set pots into the water**
- **When surface darkens lift pots from water**
- **Drain**
- **Return them to their place under the lights**

Now for the fun part!
Let's get those seeds in the 'dirt'

What you'll need:

- **Planting containers**
- **Planting mix**
- **Markers**
- **Planting tray**
- **Notebook**
- **Good seeds**

1. Planting containers



My favorite is this re-usable, deep 6-cell planter but any container with good drainage will work.

***To reuse soak in a 9-to-1 water/bleach solution for 10 minutes then rinse thoroughly.**

2. Markers for identifying seeds



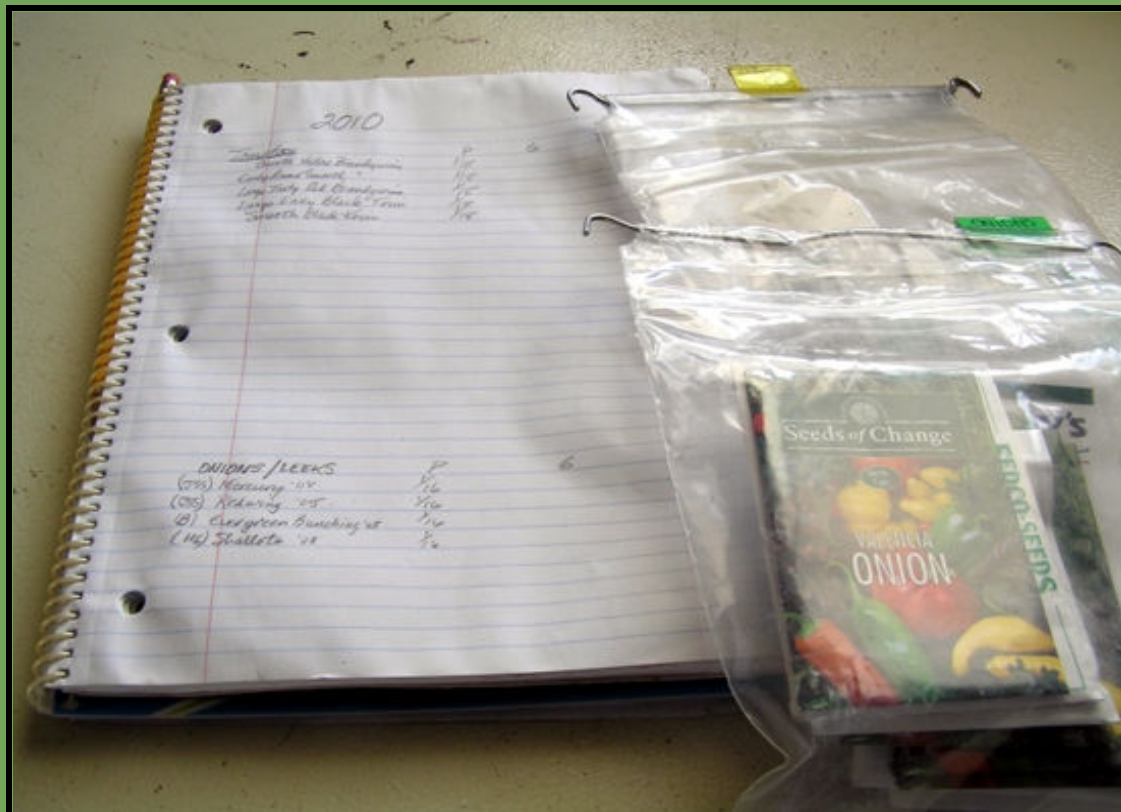
I use nursery markers or milk cartons cut into strips and a permanent fine-tip marker.

3. Something to contain the mess (if you can't work outside)



A planting tray, large cookie sheet or even a shallow cardboard box will do the trick. (You'll get dirt on the floor no matter what!)

4. A notebook that can survive the outdoors



9/13 Harvested Ailsa Craig, Candy, Mercury, Oly
Valencia onions. All the east row did better
Mercury even though some of the seedlings had
purple coloring - bulbs are just a 2 pur
Valencia very small (day-length var)
Harvested most of onions in coral - 1 lb
First lettuces sprouting in fall bed
9/14 C. 6# beans (bush & Scarlet, Dutch &
One Ireland Cabbage - 4 1/4 lbs
Couple more Black Krim; nothing else done
Lots of fruit but very few hints of ripening
9/18 First Japanese Black Trifol
More Black Krim. Everything else is
Marmale are just beginning to turn
First S. S. ...

**You'll love yourself
when next season
comes around!**

5. GOOD SEEDS!



- **Learn to save your own**
- **Talk to fellow gardeners**
- **Check out the IFCGA website (www.ifcga.org) and follow the link to Seed Sources**
- **Check our local garden centers**
- **Winco bulk foods! :)**

Growing Strong

Steps for getting your seeds in the soil



Step 1: Fill your planting containers with moist planting mix



Step 2: Gently pack down so it is not too loose



Step 3: Make a label with variety, date, etc.★



★ i.e., seed source, seed year, etc.

Step 4: Plant seeds according to packet (or catalog or internet) instructions

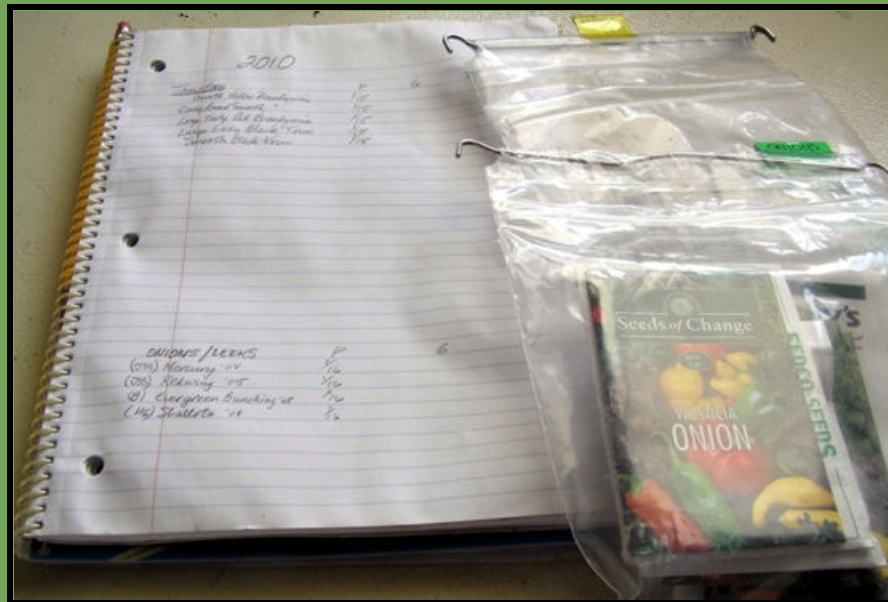


Planting Tips

- **Plant seeds into the soil to a depth about 3x the diameter of the seed**
- **Don't plant too heavily**
- **Pay attention to light needs of seeds**
 - **if light is necessary for germination sprinkle seeds on surface press in. Use a clear plastic bag to cover.**
- **Be sure that your labels are in place**

More Tips

- **Make notes in your notebook to help remember details**
- **Check moisture level of planting mix - bottom water if necessary**



That was easy!

Finished planting



Step 5: Cover the seeds with a plastic bag ★



★ Be sure to check planting instructions: if seeds require light for germination use a clear plastic bag

Step 6: Put in a warm place and monitor daily

- **Keep a close eye on them because some seeds will germinate in 3-4 days**
- **Keep checking - some seeds can take up to 3 weeks to germinate**
- **Remember to check the moisture level of seeds that are slow to germinate**

Auxiliary heating

Why?

Lots of 6-cells

Speed germination

How?

Heating mats

My method:

Electric blanket calibrated to 75° F

Light plastic cover over blanket

Step 7: As soon as seedlings are up move under lights.



**Soon they will look like
this**





...and then this



★ If seedlings are too crowded or too large, thin with scissors or transplant so that a growth trend is maintained

and finally, if all goes well...



...this!



Other Tips

FEEDING SEEDLINGS

- **When seedlings have their first set of true leaves you can begin feeding**
- **Feed every other watering**
- **Any good plant food with a balanced N-P-K will do but organic is best**
- **Use at $\frac{1}{4}$ strength for the first few weeks then $\frac{1}{2}$ strength**

Other Tips

HARDENING OFF

- **Gives your coddled plants a chance to adapt to 'challenging' Idaho conditions**
- **Gradual exposure to outside conditions**
- **Can be accomplished in about 4 days**
- **It will make you crazy if you damage - or kill - your plants!**

Hardening Off

- 1. Start out by taking the plants outside on a calm day for about an hour.**
- 2. Bring them back under the lights.**
- 3. Repeat the process each day, doubling the time until they are out all day.**
- 4. Adjust times to account for wind & cold**

4. Start over if inclement weather keeps your plants under lights for several days

5. Water more frequently as plants grow

6. If frost threatens bring in overnight





Hardening off is definitely worth the time it takes

Sense of Adventure!

- **Maybe most important**
- **Learn about growth and nurturing, patience and perseverance**
- **Ignite your sense of the possible**
- **Try what you haven't before**

- **Embrace imperfection**



- **Accept your failures**
- **Learn from your mistakes**
- **Share what you've learned**
- **Keep trying and you will keep growing...**

... and enjoying your own bountiful harvest



Let's grow together!



Idaho Falls Community Garden Association
www.ifcga.org

