Direct Seeding Vs. Transplanting

1. Why Direct Seed?

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- It is not practical or economical to transplant some plants
  - Examples of these plants are:
    - Tap-rooted crops (carrots, parsnips)
    - Low-return-per-square-foot crops (corn, pumpkin)
    - Legumes (peas, beans)
    - Fast-growing crops (radish, spinach)
    - Herbs (can go either way)

3) How To Precision Seed

- Germination percentages for direct seeding are lower than the percentage on the seed packet.

3) How To Precision Seed

- Allow for a “fudge factor” of 50 to 100 percent germination
- Example: If you want a plant every 4 inches then set the seed spacing at every 2 inches for the seeder

3) How To Precision Seed

- As a general planting rule, cover seeds to three or four times their diameter (i.e. plant a ¼" diameter pea 1 inch deep)
  - In cool or heavy soils, plant a little shallower
  - In warm or dry soils, plant slightly deeper
  - Keep soil moist until germination

3) How To Precision Seed

- Mark the row before seeding:
  1. Stretch a string tightly along the side of your first row
  2. The row-marker arm on the seeder will mark the following rows for you
  3. Aim your seeder straight for each pass
  4. For larger areas you can use an adjustable rolling marker or marker rake to mark your rows

3. Direct Seeding By Hand

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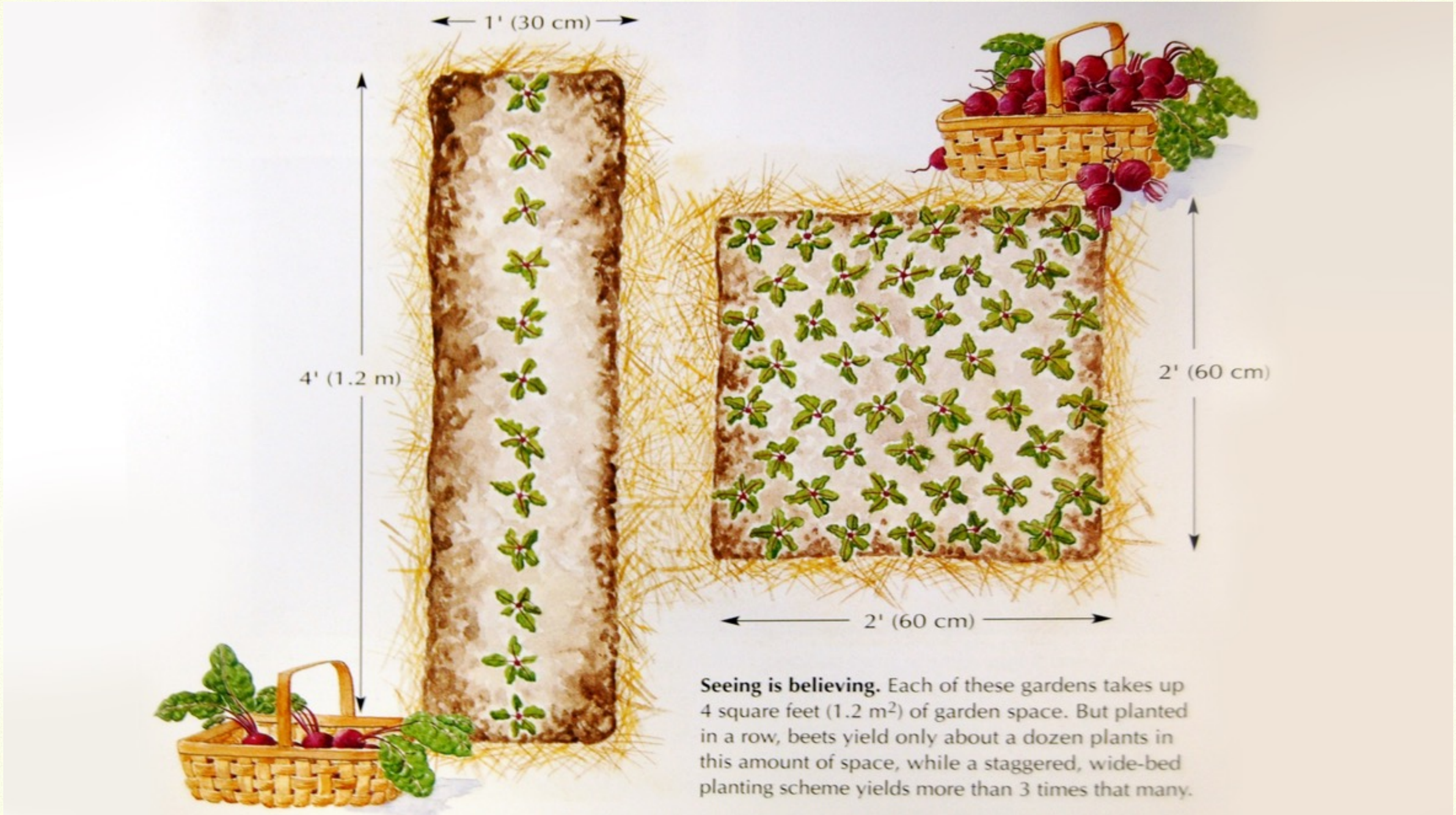
- Hand-seeding is usually used for legumes and corn:
  - Beans
  - Peas
  - Corn

Why Transplant?

"The practice of starting seedlings in one place and setting them out in another." -Eliot Coleman

Why Transplant?

- There are many advantages to transplanting:
  1. Transplanting is more reliable
  2. Better plant care and cost efficiency
  3. An almost sure harvest
  4. It is easier to deal with weeds
  5. It increases the effectiveness of succession planting
  6. Shelter gives a head start



Seeing is believing. Each of these gardens takes up 4 square feet (1.2 m^2) of garden space. But planted in a row, beets yield only about a dozen plants in this amount of space, while a staggered, wide-bed planting scheme yields more than 3 times that many.

Three Stages To Transplanting

1. Starting
2. Potting On
3. Setting Out

First Stage To Transplanting

- STARTING
  - Seeds are sown in some sort of bed or container which usually holds a special soil mix or potting soil
  - The soil mix is different from garden soil in that it has extra organic matter and drainage material in it. This helps seedlings thrive despite their confined conditions
  - A controlled environment (in your home, greenhouse, cold frame, etc) is used to enhance the growing conditions for the young seedlings

First Stage To Transplanting

- STARTING
  - Types of containers to start seedlings in: individual pots, plug-type trays with individual cells, or soil blocks
  - We prefer the soil block method for most of our seedlings

Second Stage To Transplanting

- POTTING ON
  - Transferring a seedling from its initial container to a larger container
  - This is only necessary when crops are grown for a longer time or to a larger size before being set out

Third Stage To Transplanting

- SETTING OUT
  - Planting the young plants in the field or greenhouse where they will grow
  - The more efficiently this transfer is done, the more cost-effective transplanting becomes

1. What Is The Soil Block?

1. What Is The Soil Block?

- A block made out of lightly compressed potting soil
- Serves as both the “container” and growing medium
- Blocks are pressed out by a form and the air space between the blocks serve as “walls”

~Elliot Coleman

1. What Is The Soil Block?

Advantages of the Soil Block:

1) When the seedling's roots reach the air they stop growing thus preventing root circling as would happen in a container
2) Seedling roots become well established in a soil block and quickly take root when transplanted in the field
3) The roots of seedlings quickly fill the soil block holding it together quite firmly so that it is not fragile when handling
4) There are no plastic pots or plug trays to deal with
5) Blocks can be made in various sizes to meet your potting needs

2. The Soil-Block Maker

- Has forms to make:
  - 3/4-inch blocks (mini-blocks)
  - 1 1/2-inch blocks
  - 2-inch blocks
  - 3-inch blocks
  - 4-inch blocks (maxi-blocker)

3. Soil Block Mix

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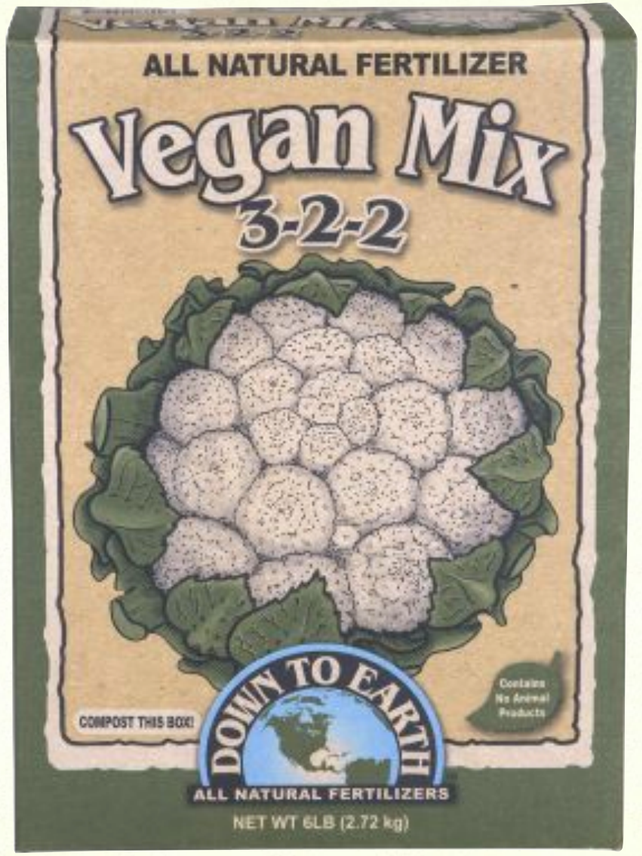
Blocking Mix Recipe:	Full	Half	Quarter
Peat Moss	6 gallons	3 gallons	1.5 gallons
Compost	6 gallons	3 gallons	1.5 gallons
Course Perlite	2 gallons	1 gallon	1/2 gallon
Fertilizer Mix	2 cups	1 cup	1/2 cup

Note: 2 gallon buckets work well for measuring. You can find them at your local hardware store.

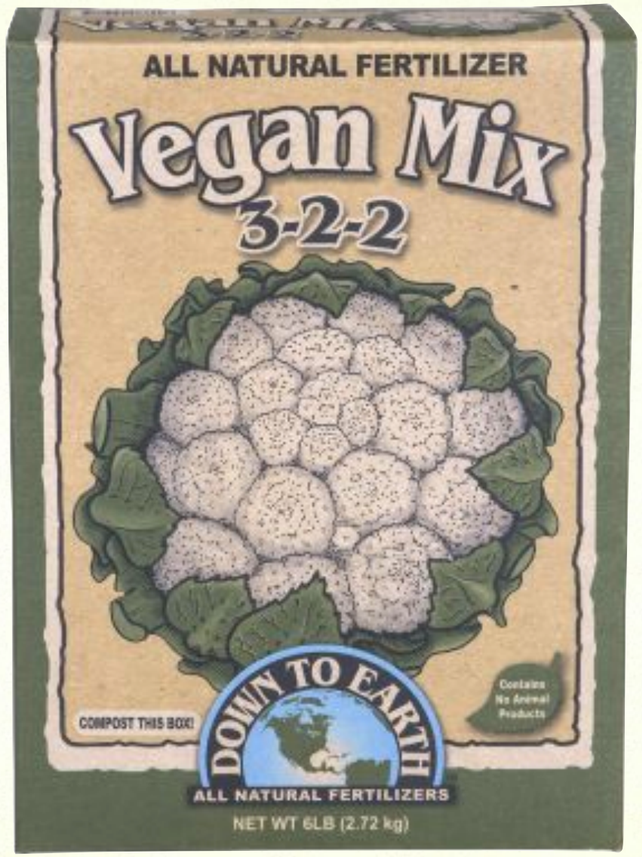
3. Soil Block Mix

- Fertilizer Mix:
  - Down to Earth Vegan Mix
  - OMRI Listed
  - 100% Plant Based
  - Excellent balance of nutrients
  - Soy bean meal, canola meal, alfalfa meal, rock phosphate, langbeinite, greensand, kelp meal and humic acids



3. Soil Block Mix

- Fertilizer Mix:
  - Down to Earth Vegan Mix
  - Get it at: store.borntogrow.net



3. Soil Block Mix

- This isn't the only recipe - others have mixes that work well also
- Moisten the mix by adding water at an approximate ratio of 1 part water to 3 parts mix
- It is better for the soil block mix to be more wet than dry
- Should be like a wrung out sponge

4. Making Soil Blocks

- Using the soil-blocker:
  - Push down quickly with a twisting motion into blocking mix
  - Scrape off excess mix
  - Eject blocks onto a tray/flat
  - Rinse in water between each use

1. Avoiding Transplant Shock

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A) Hardening-off

- This is the process of gradually exposing sheltered seedlings (started in your home or green-house) to the outside elements
- Place outside in mid-afternoon and leave until mid-morning

1. Avoiding Transplant Shock

B) Water Transplants

- It is important that seedlings be well watered before transplanting

1. Avoiding Transplant Shock

C) Avoid Disturbing Roots

- Be careful to preserve the fragile root systems of the seedlings while transplanting
- You are less likely to disturb the roots of a seedling grown in a soil block because the roots are air pruned

2. Proper Spacing

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- By properly spacing transplants you are making optimum use of the land area
- Weeding/cultivating is more efficient when plants are properly spaced
- A marker rake is one of the easiest ways to space correctly

3. Soil Contact

3. Soil Contact

- Dig a hole with a trowel
- Place soil block lightly but firmly in the ground
- Avoid air pockets and uncovered edges
- If even a corner of the block is above the soil it can easily dry out the whole block

4. Watering

4. Watering

- It is important to water immediately after transplanting. The moist ground helps the transplant take root faster and become established in its new environment.