



Principles of Vegetable Production



By Dr Guy Stubbs

Narrative by Amie Harms

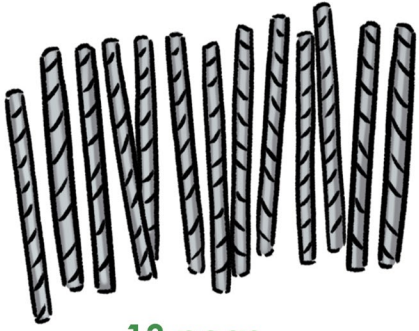
Artwork by Carissa Gagashi



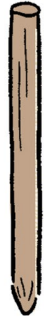
Supplies you will need:

- ✓ **13 pegs**
20cm long.
Use plastic conduit, hard wood, steel or small plastic bottles filled with sand.
- ✓ **Two measuring ropes**
One 1m long and one 2m long, with loops tied on both ends.
- ✓ **Measuring stick** - 37.5cm long.
- ✓ **Matchbox**
- ✓ **Planting stick** - rounded on one end.
- ✓ **A large book or piece of newspaper**
- ✓ **Woodash** - 500ml.
- ✓ **Dry manure** - 6 litres or 1 Checkers bag.
- ✓ **Dry grass or leaves** - 5 Checkers bags.
- ✓ **Seeds and seedlings:**
 - 25 green bean seeds
 - 15 spinach seedlings
 - 15 beetroot seedlings
 - 15 springonion seedlings

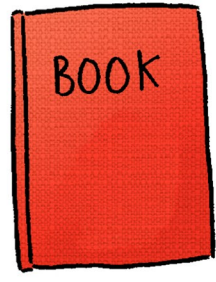




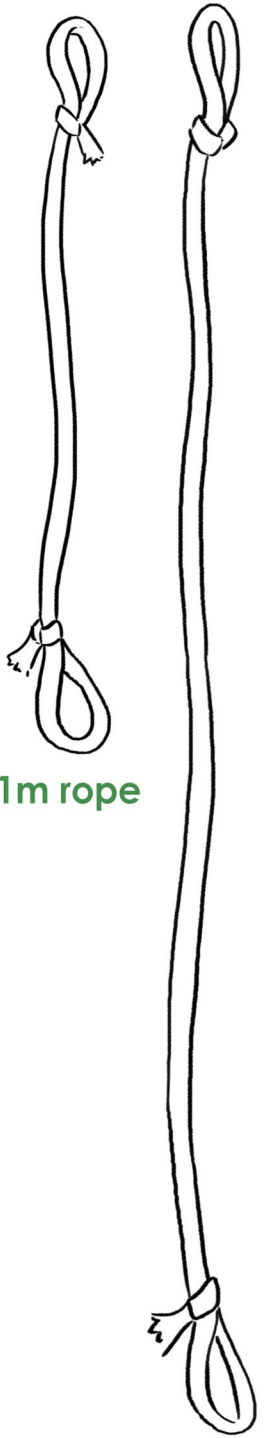
13 pegs



planting stick

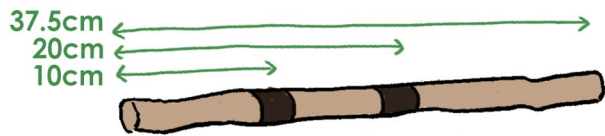


book or newspaper



1m rope

2m rope



measuring stick



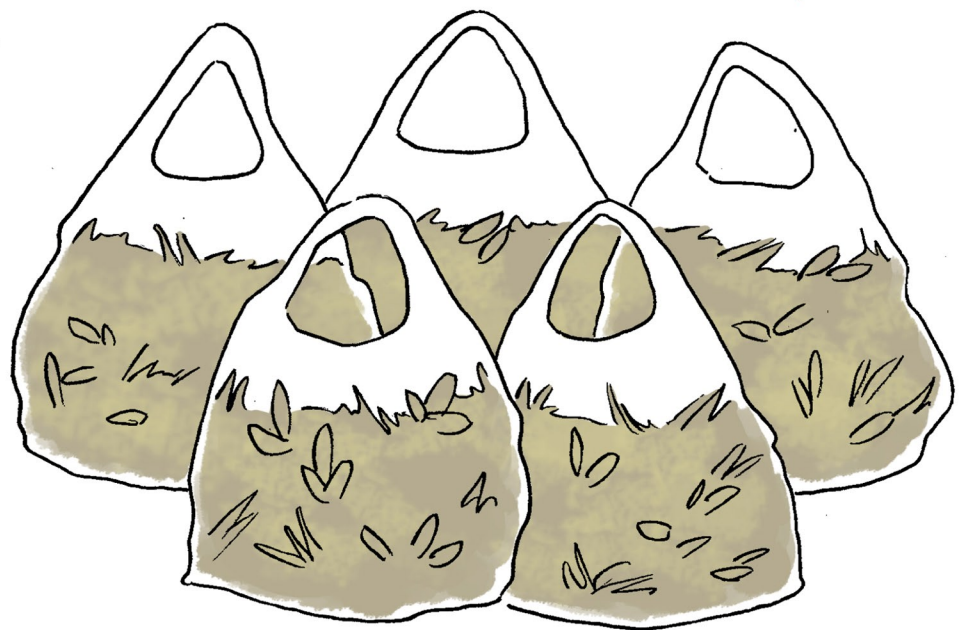
matchbox



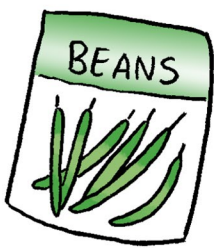
woodash



dry manure



dry grass or leaves



25 seeds



15 seedlings of each

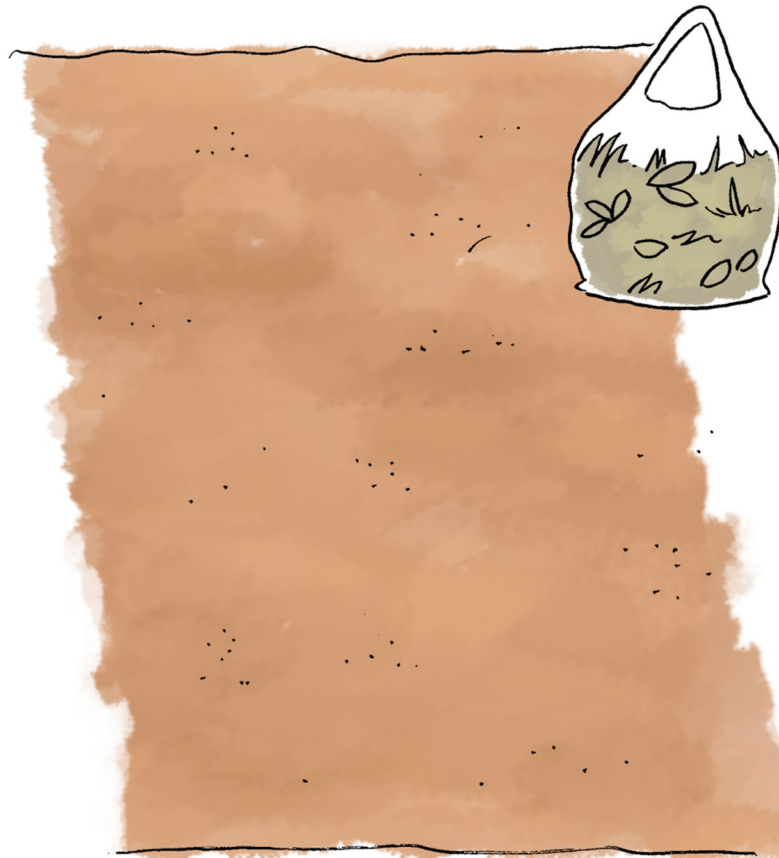
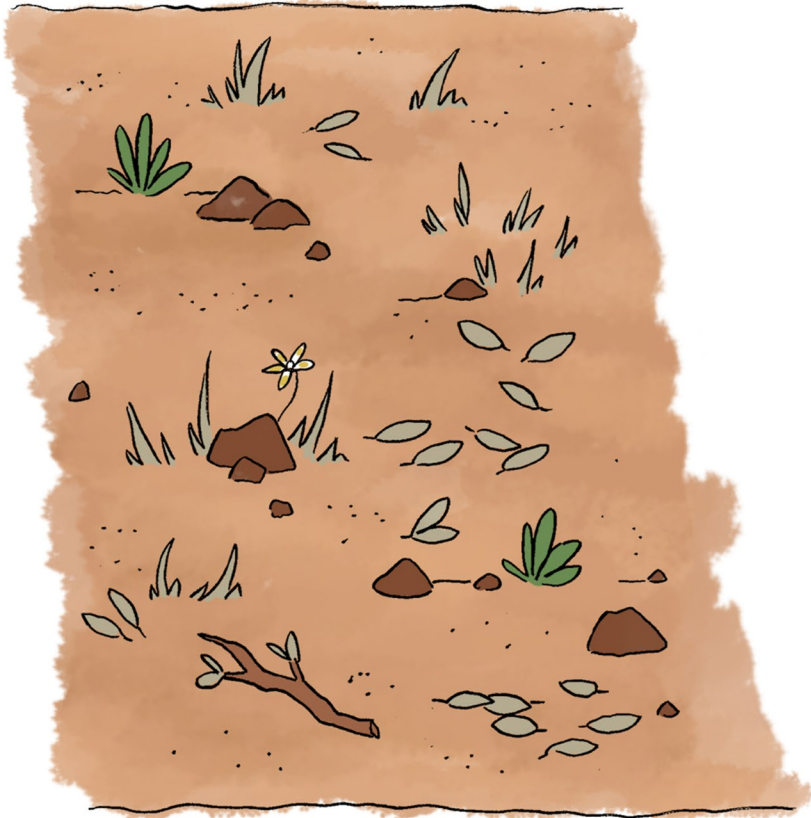
Principle 1: Clear the ground.

We start our gardens by clearing the ground so that there are no stones, grass, or weeds to stop the vegetable seedlings from growing big and healthy.

Keep any dry leaves or grass that you clear in your Checkers packets so that it can be used for God's Blanket.

Patch with weeds,
stones, and debris.

Dry leaves can be used
for mulch.



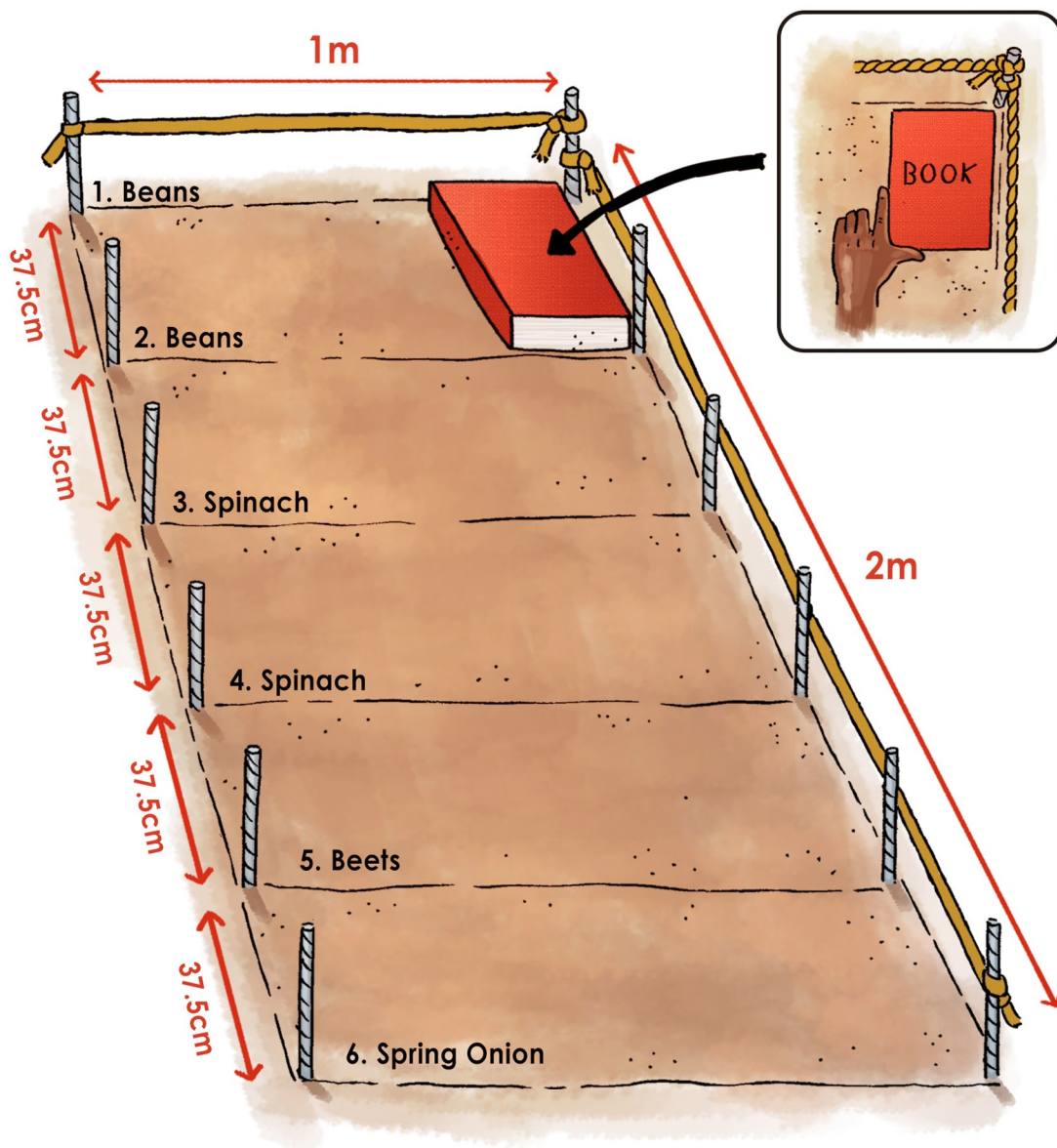
Cleaned patch.

Principle 2: Make/take measurements to know where to plant.

Use your ropes and spacers (like a book) to make even rows for your vegetables. Pegs or other markers can be used to mark where one row starts and ends.

For example, if you are making a small garden, you can measure as follows:

1. Use the 1-meter rope to measure the width of the garden.
2. Use the 2-meter rope to measure the length of the garden.
3. Place pegs at the end of each rope to mark the area of your garden.
4. Use a book or folded newspaper to make a square. Start by placing the book in one corner of the garden, making sure that the longest side of the book is next to the longest side of the garden.
5. Place a peg at the bottom of the book.
6. Repeat steps 5 and 6 until you have 5 rows in your garden. You should have 12 pegs in the ground.

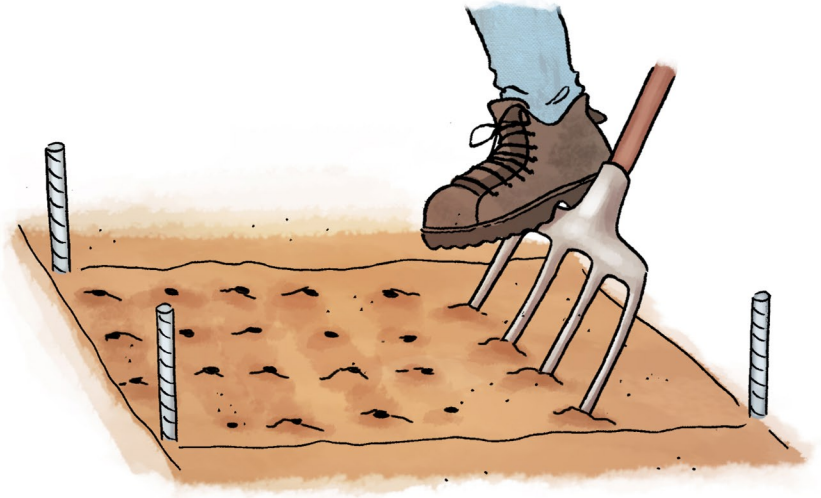


Principle 3: Loosen the soil (please do not plough or turn the soil) – to be 30cm deep.

Now, you must loosen the soil by lifting it up. Do not plough the soil because ploughing can upset the environment for worms and other insects that help keep the soil aerated and nutritious for plants.

You can loosen the soil by:

1. Take your garden fork and push it into the ground so that it is about 30cm deep.
2. Pull the fork back so that the soil lifts and loosens by crumbling.
3. Repeat these actions until all the soil in your garden is loose.

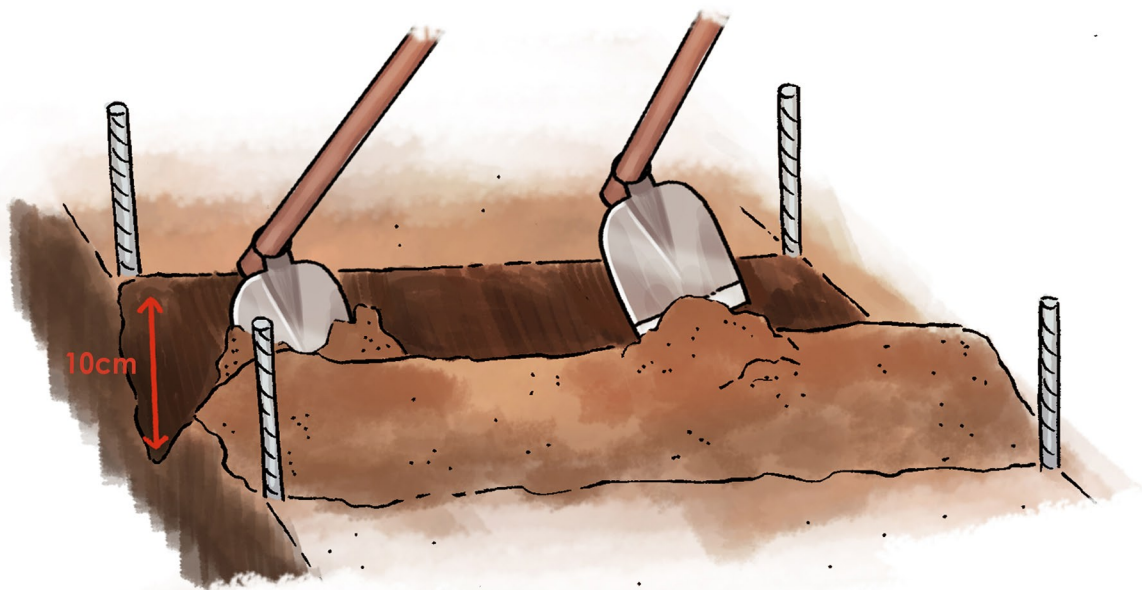


Principle 4: Add nutrients/food to the soil (compost is best, but you can also use dry kraal manure). Note that beans and peas are plants that add Nitrogen to soil.

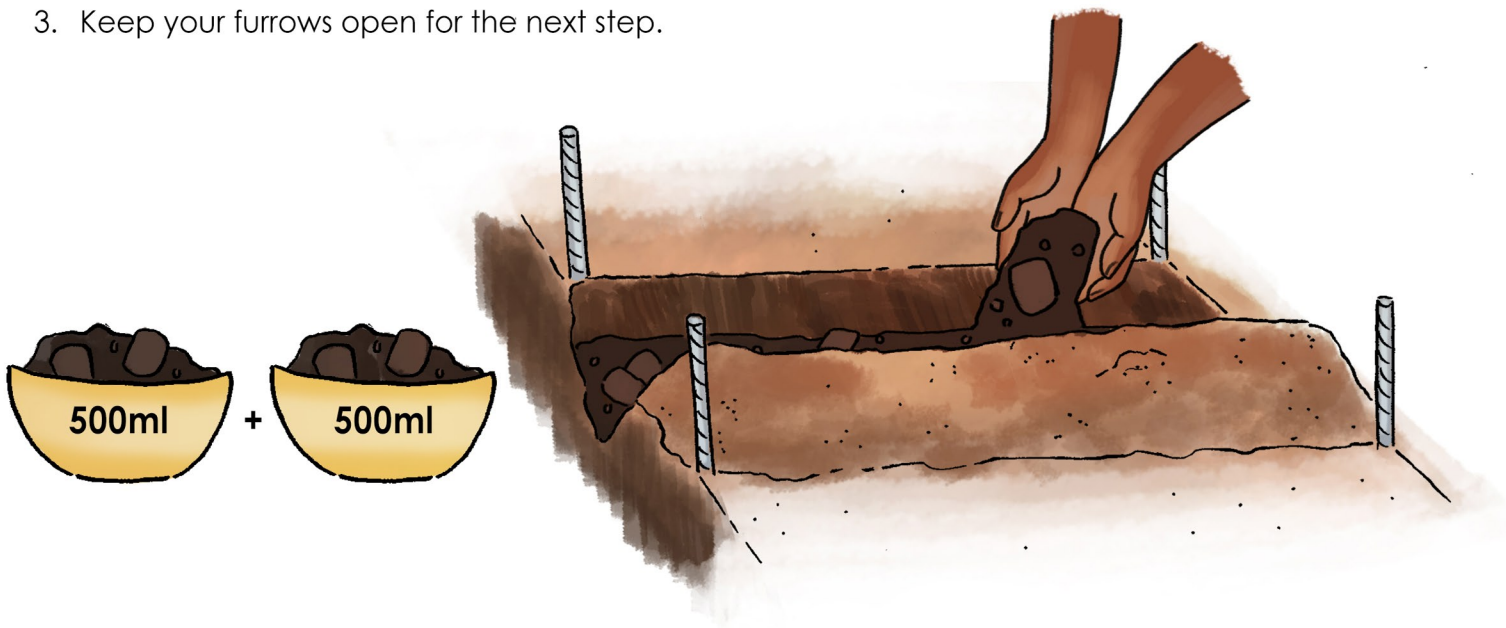
We need healthy soil to grow healthy plants. Minerals we get from compost and dry manure help to enrich the soil so that it is very healthy.

This is how we can add nutrients to soil:

1. Dig a furrow for each row. Furrows are rows that are dug at an angle to form a triangle shape in the ground.



2. Evenly spread one litre of dry manure (or two porridge bowls) in each furrow.
3. Keep your furrows open for the next step.

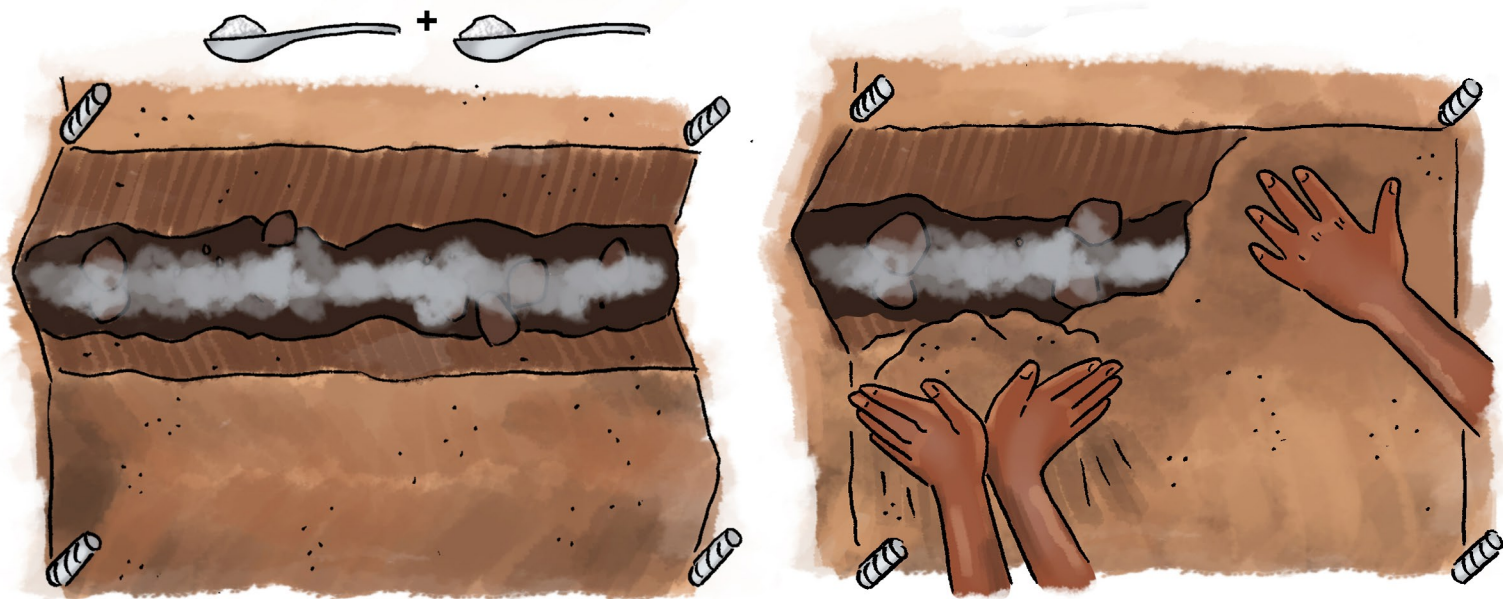


Principle 5: We use Woodash to balance the pH of the soil.

If soil is too acidic, it ruins the nutrients in the soil and creates an environment that is bad for the roots. Nitrogen is a chemical we get from Woodash that helps plants have lots of energy to grow.

To add Woodash to your garden, you must:

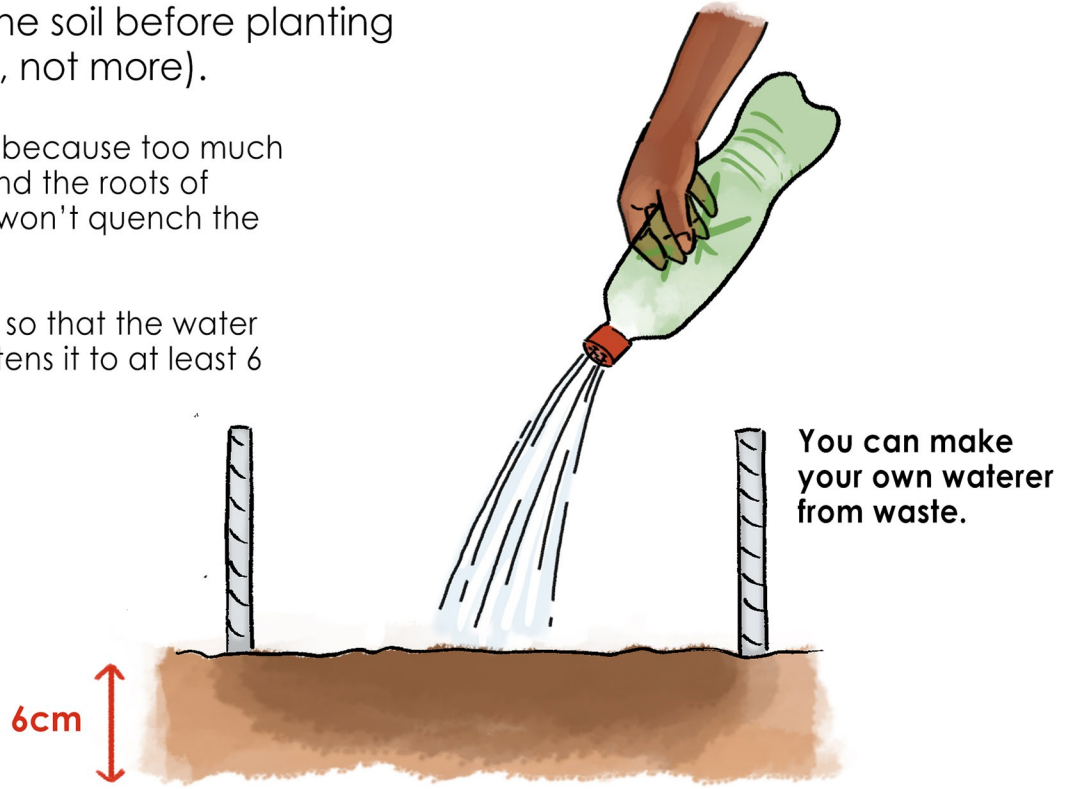
1. Evenly spread two tablespoons of Woodash in each furrow.
2. Cover the manure and Woodash with soil and fill the furrow.
3. Pat the soil so that it is all flat and level.



Principle 6: Water the soil before planting (not less, not more).

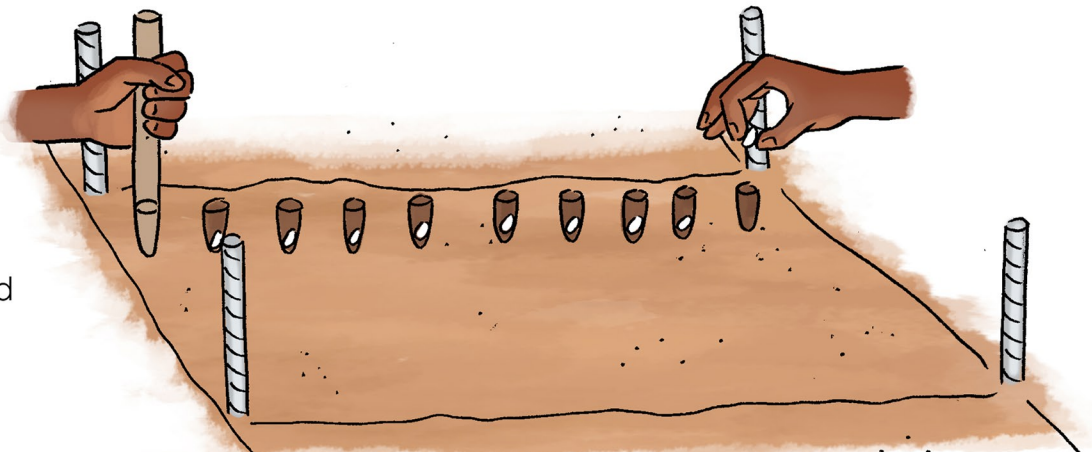
Do not flood your garden because too much water can drown seeds and the roots of seedlings. Too little water won't quench the thirst of the plants.

Water the soil just enough so that the water runs into the soil and moistens it to at least 6 centimetres deep.



Plant Bean Seeds

Push in holes 3cm deep and 10cm apart.
Plant 10 seeds per row and cover lightly with soil.

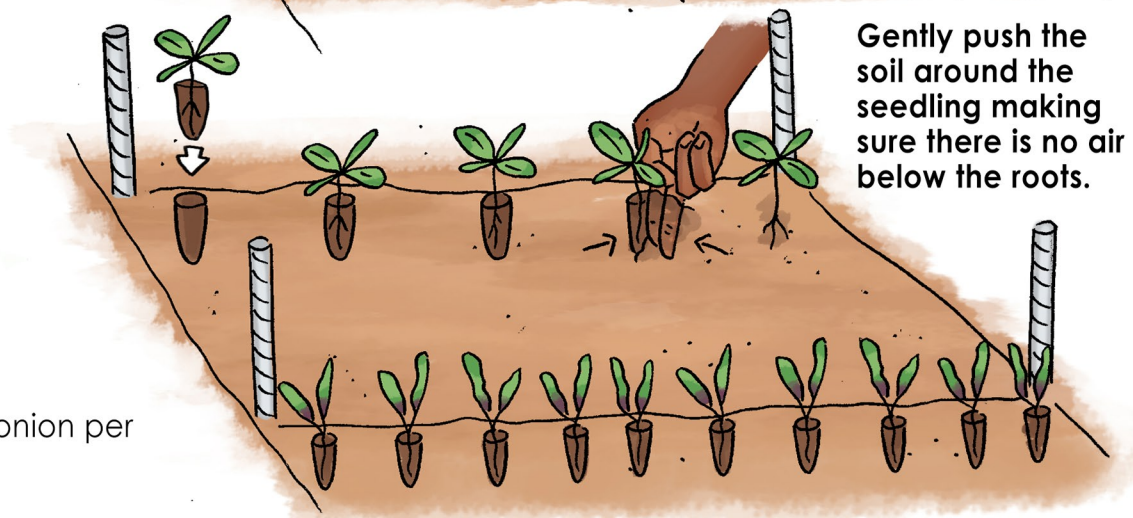


Plant Seedlings

Push in holes 6cm deep.

Plant 5 spinach per row, 20cm apart.

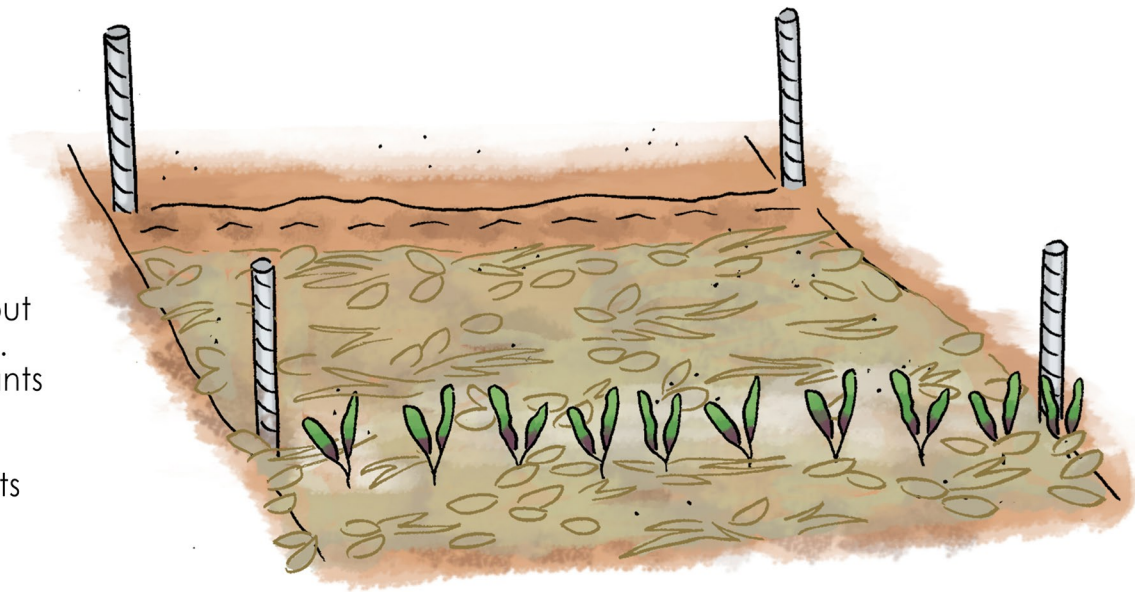
Plant 10 beetroot/springonion per row, 10cm apart.



Principle 7:

Put the mulch/God's Blanket around the holes for the seeds and seedlings. This helps stop water evaporation (water loss) and helps stop weeds from growing.

Use old, dried leaves and grass to make a "blanket" that is about 2.5 centimetres thick. Do not cover the plants with the mulch but place it around the area where the plants will grow.

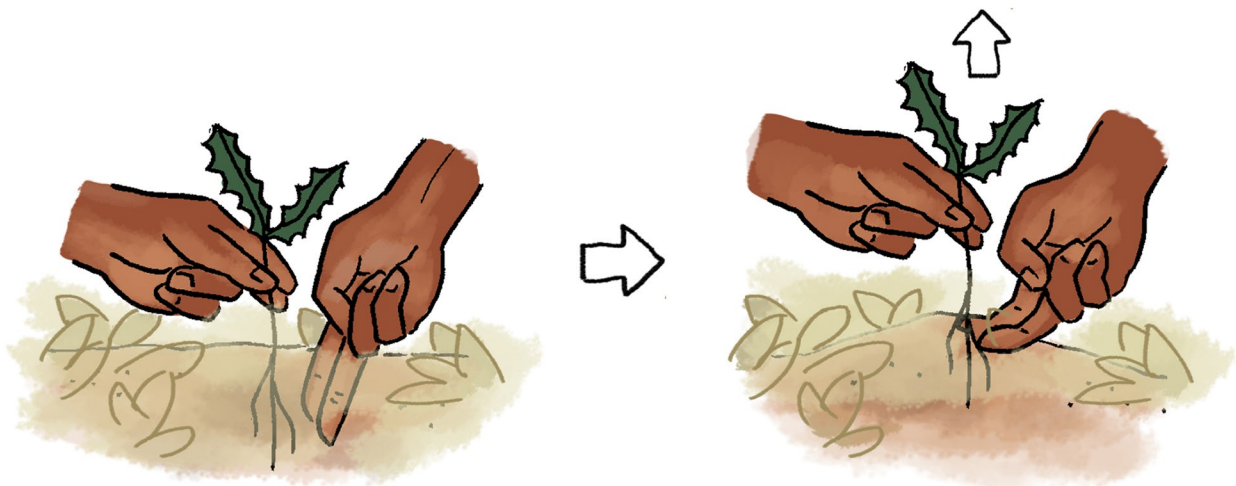


Principle 8:

Weed the plot so that the weeds do not compete with the crops for nutrients/food.

Weeds have no purpose in a vegetable garden and can do more harm than good.

Make sure you pull the roots of the weeds out, too. If you leave a root behind, the weeds can grow back again.



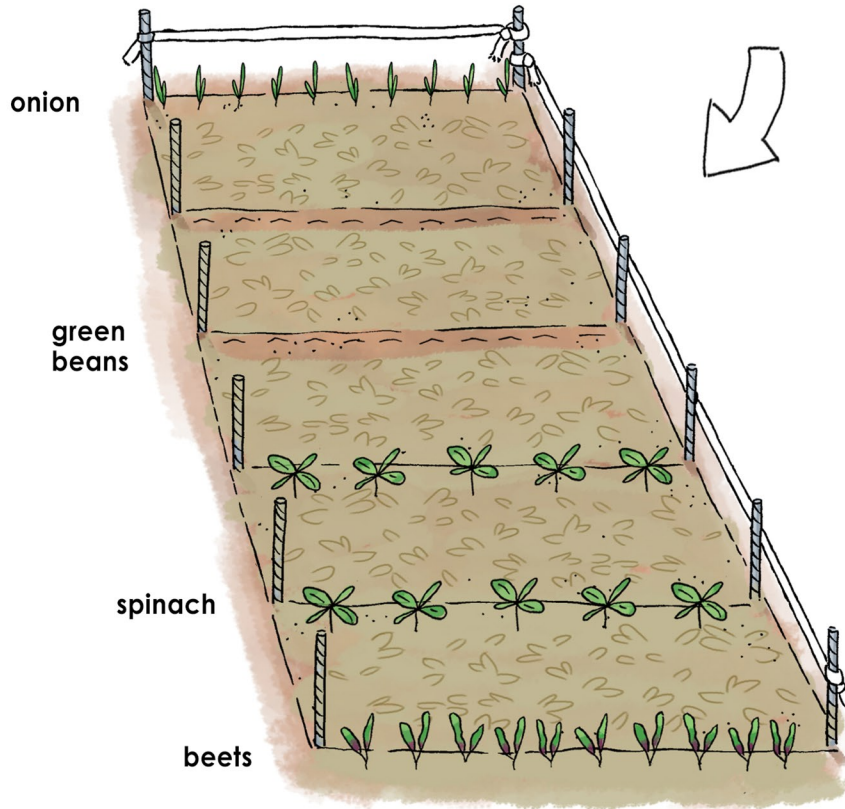
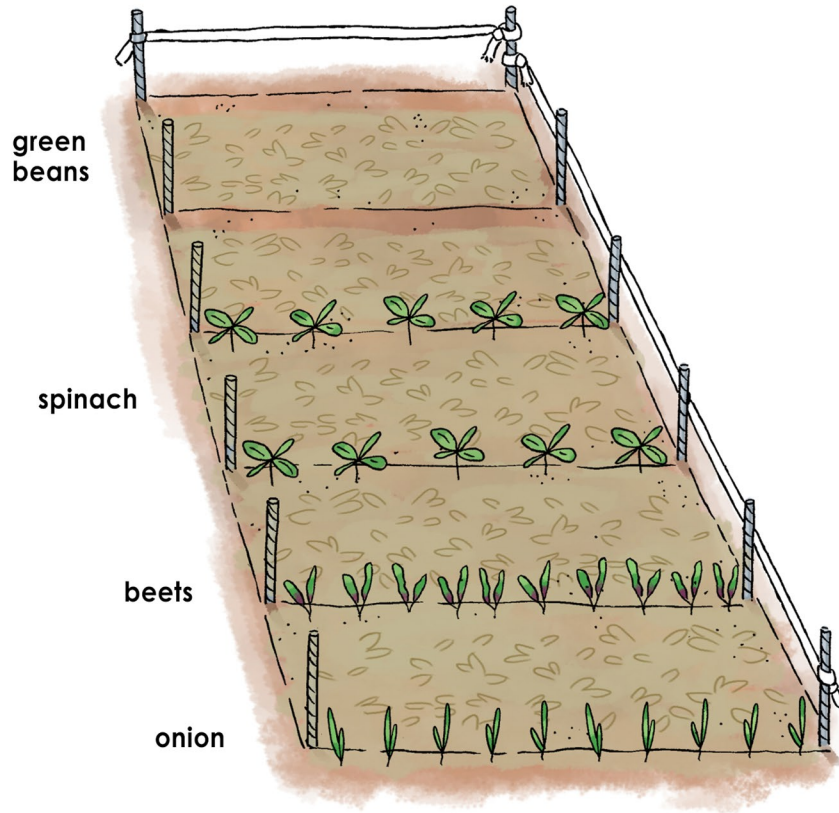
Make sure you get the roots out.

Principle 9:

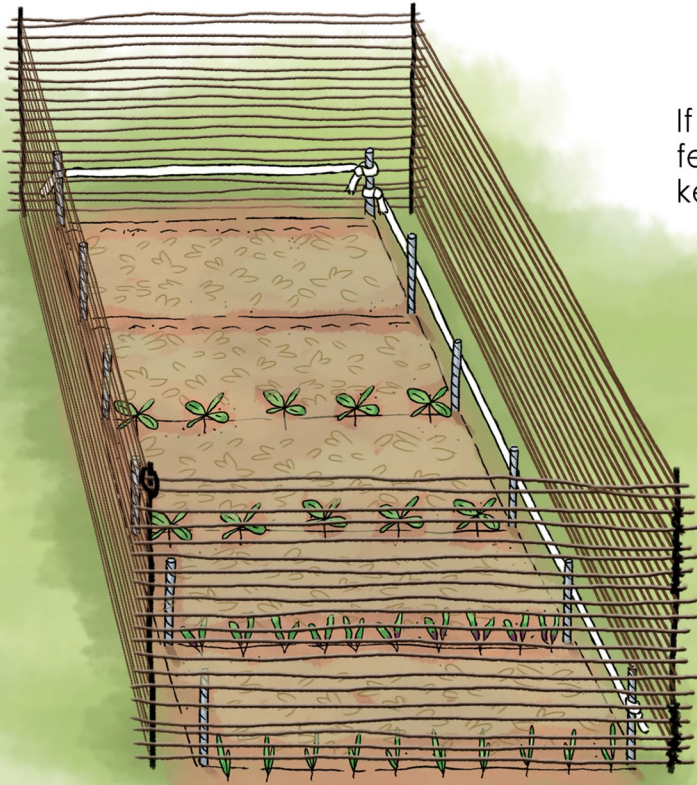
Practice crop rotation (for example, for the crops to benefit from Nitrogen left in the soil by beans/peas).

Grow seeds and seedlings in soil that has been used to grow other vegetables. This will help to keep the soil healthy and full of food for the new seedlings.

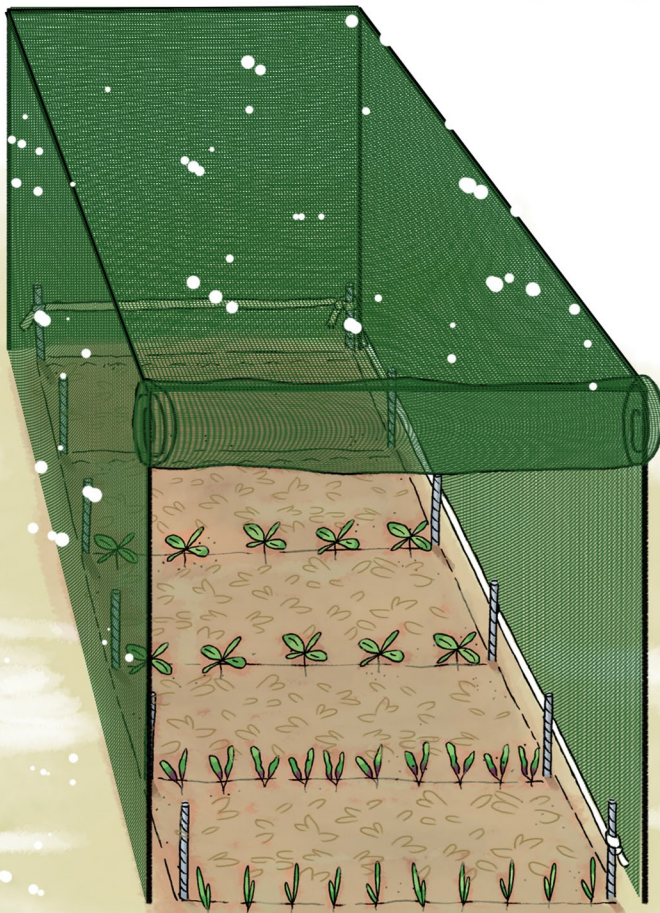
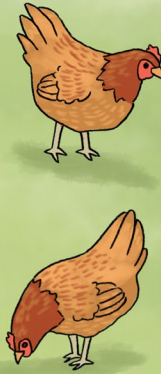
Also, where onions have been, insects will not go.



Principle 10: Take care of crops, be it against Frost/Black Frost, pests or animals.



If you want to, you can build a fence around your garden to keep pests and animals out.



Some people also place thin cloth or shade cloth over their vegetables to keep them safe from frost in winter.

Covering your vegetables will also protect them from hail and chickens.



Summary of the Principles of Vegetable Production (Checklist)

- 1. Clear the ground.
- 2. Make/take measurements to know where to plant.
- 3. Loosen the soil (please do not plough or turn the soil)
– to be 30 centimetres deep.
- 4. Add nutrients/food to the soil (compost is best, but you can also use dry kraal manure). Note that beans and peas are plants that add Nitrogen to soil.
- 5. Use Woodash to balance the pH of the soil.
- 6. Water the soil before planting (not less, not more). Keep on watering the seedlings regularly. The mulch will keep the soil moist for longer.
- 7. Put the mulch/God's Blanket around the holes for the seeds and seedlings. This helps stop water evaporation (water loss) and helps stop weeds from growing.
- 8. Weed the plot so that the weeds do not compete with the crops for nutrients/food. The mulch should prevent the weeds from growing.
- 9. Practice crop rotation (for example, for the crops to benefit from Nitrogen left in the soil by beans/peas and help with insect control).
- 10. Protect of crops, be it against Frost/Black Frost, pests or animals.

Balance Sheet

| Slip Number | Date | Description | IN | OUT | BALANCE |
|--------------|------|-------------|----|-----|---------|
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| TOTAL | | | | | |



Business Plan for Selling Vegetables

| Buy seeds and seedlings. | |
|--------------------------|---------------|
| 25 bean seeds | R5.00 |
| 15 spinach seedlings | R5.00 |
| 15 beetroot seedlings | R5.00 |
| 15 springonion seedlings | R5.00 |
| Total | R20.00 |



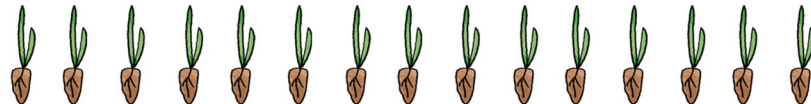
spinach



beetroot



springonion



= R20

Plant them, nurture them and then harvest.



4 bunches of green beans



16 bunches of spinach



2 bunches of beetroot

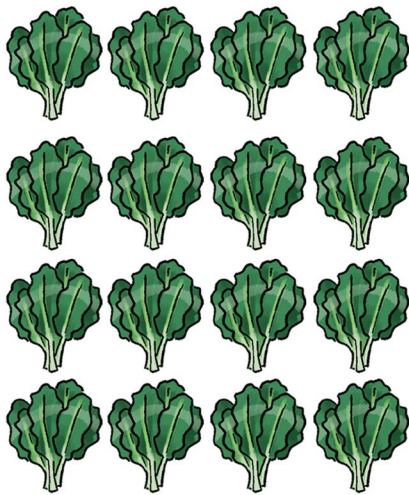


2 bunches of springonions

| Sell your harvest. | | |
|--------------------------|-------------|---------|
| 4 bunches of green beans | R20.00 each | R80.00 |
| 16 bunches of spinach | R15.00 each | R240.00 |
| 2 bunches of beetroot | R20.00 each | R40.00 |
| 2 bunches of springonion | R20.00 each | R40.00 |



4 bunches of green beans



16 bunches of spinach



2 bunches of beetroot



2 bunches of springonions

= R400



| | |
|--------------------------------|----------------|
| Cost of seeds and seedlings | -R20.00 |
| Income from selling vegetables | R400.00 |
| PROFIT | R380.00 |



Isaiah 61:11

For as the soil makes the sprout come up and a garden causes seeds to grow, so the Sovereign LORD will make righteousness and praise spring up before all nations.



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