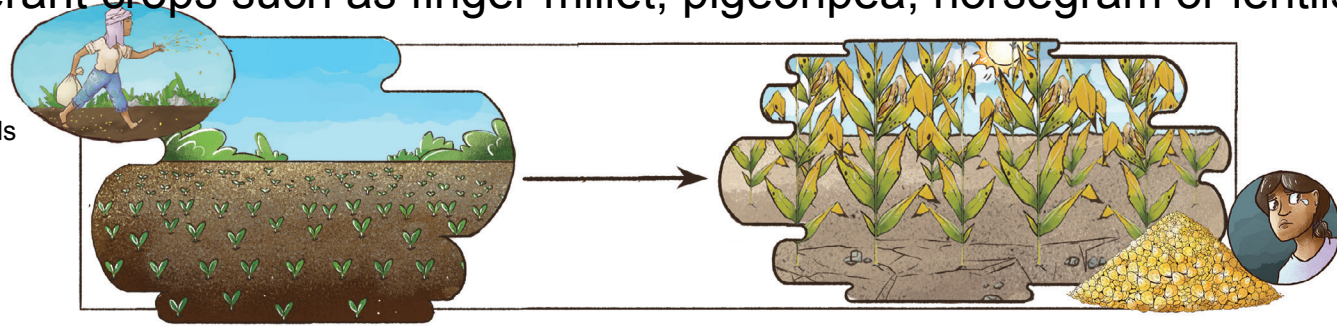


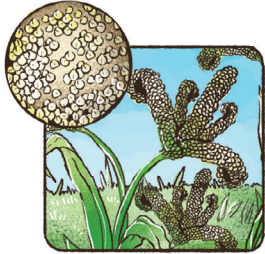
Lesson: If the climate is becoming dryer, then shift from traditional crops such as maize or rice to drought tolerant crops such as finger millet, pigeonpea, horsegram or lentils

1. Traditional practice may be to grow maize or rice but yields are low when rain is low



2. Select drought tolerant crops

finger millet



Pigeonpea



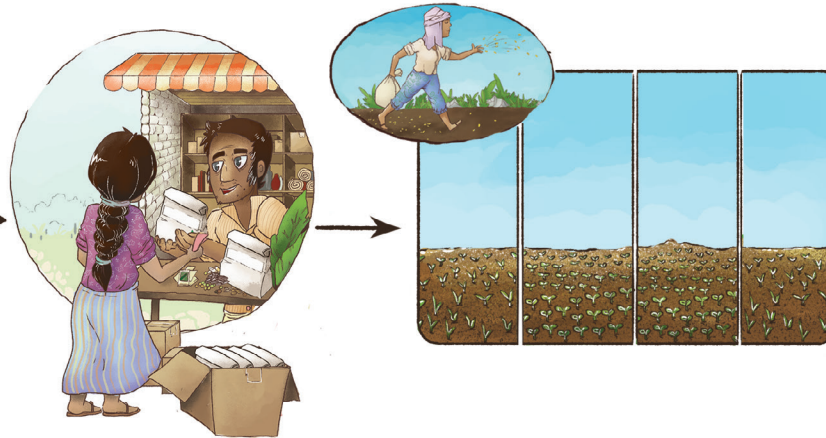
Horsegram



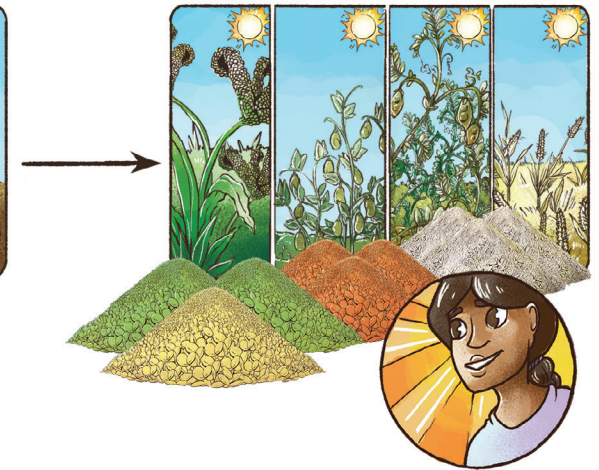
lentil



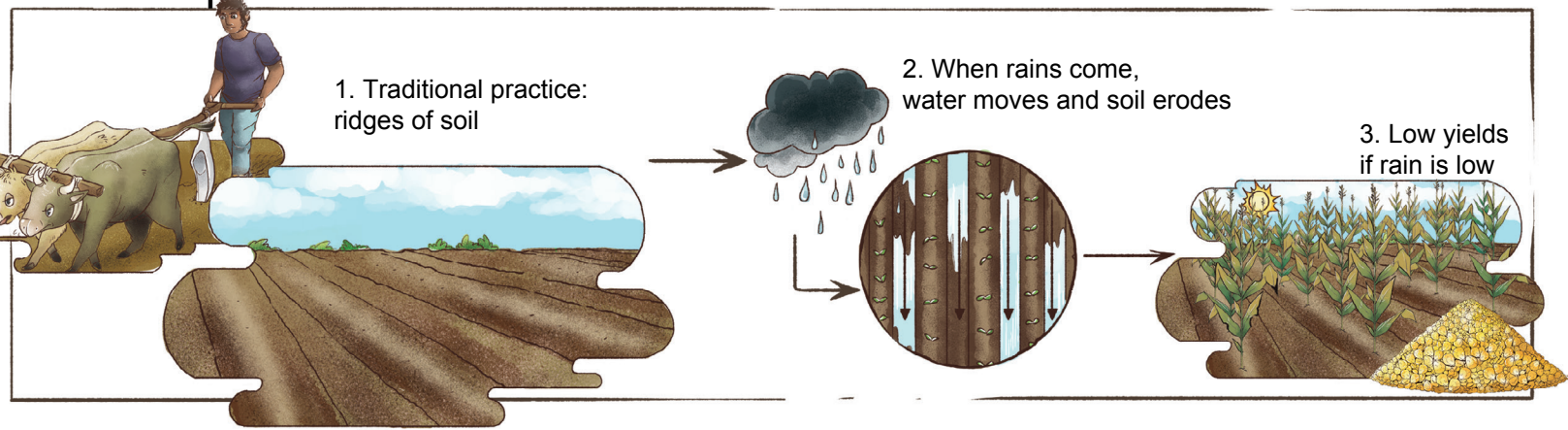
3. Purchase seed from vendor



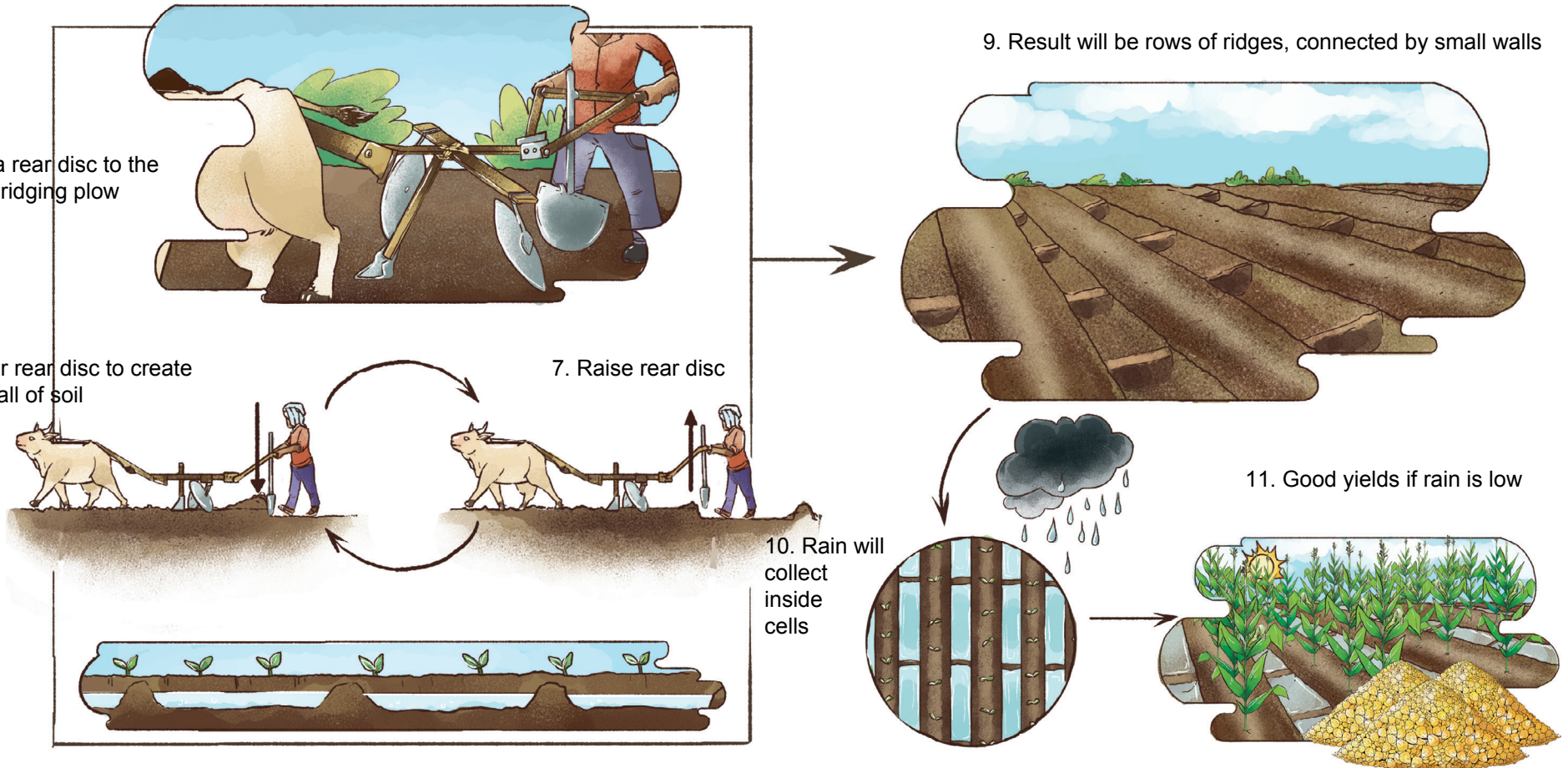
4. Good yields with low rainfall



Lesson: Connecting soil ridges with small walls of soil can conserve rainwater and reduce soil erosion on sloped land

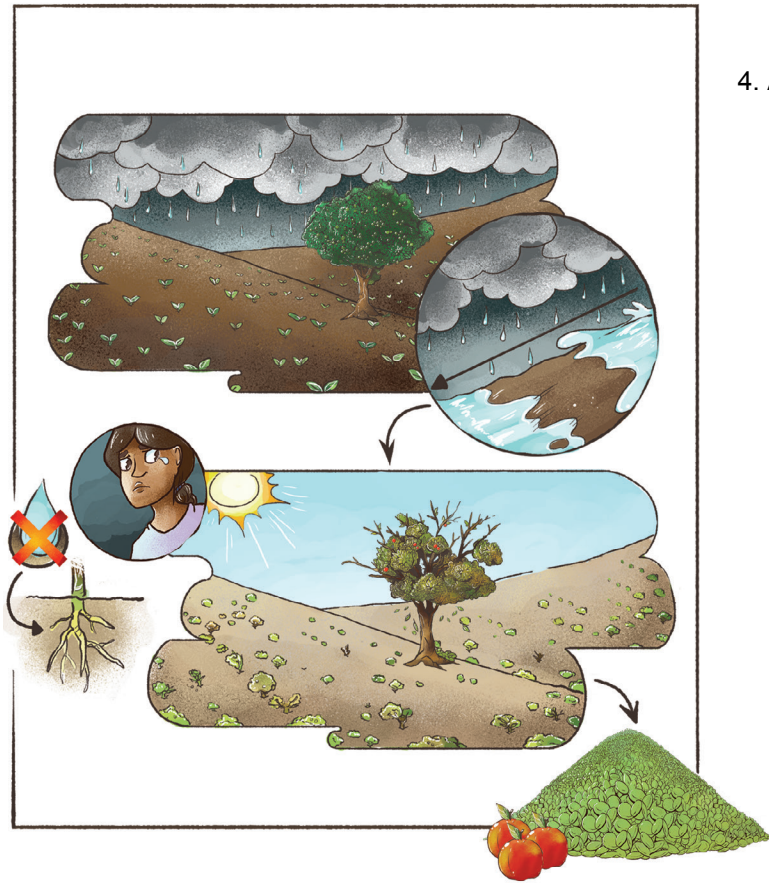


4. Improved practice



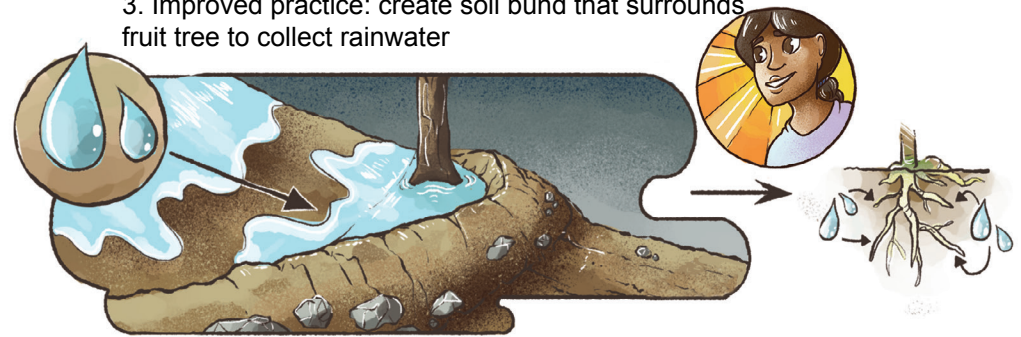
Lesson: There are simple methods to collect rainwater on slightly sloped land for dry season

1. Traditional practice: water is lost

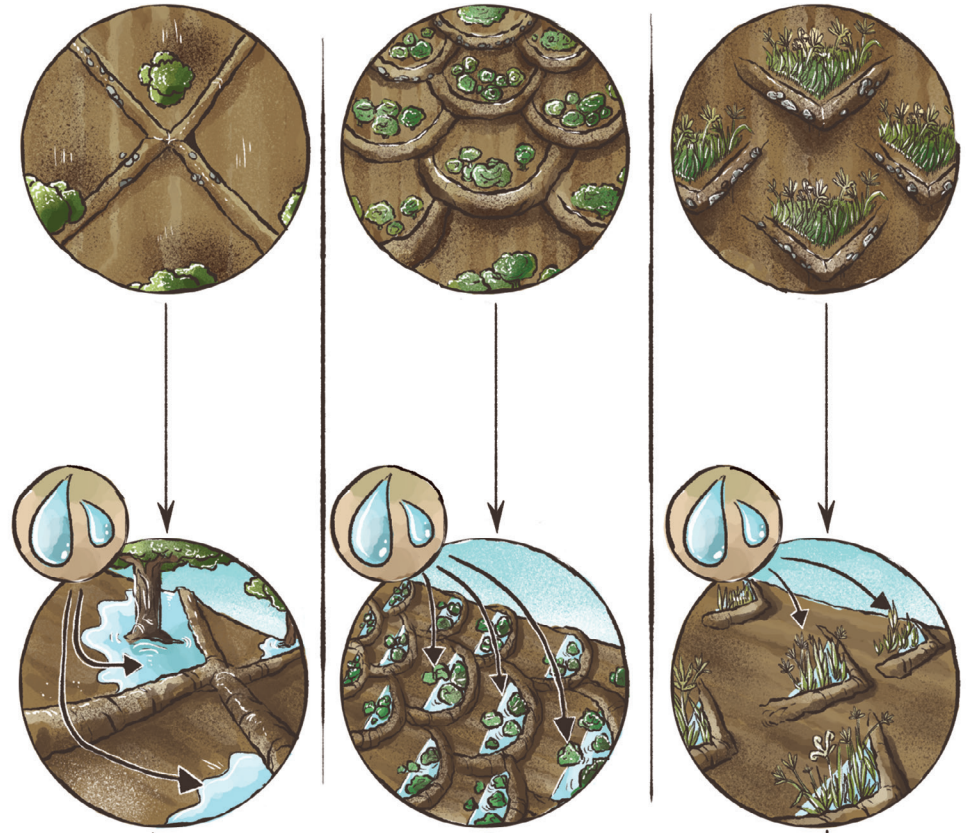


2. Low yields when rain is low (e.g. apple)

3. Improved practice: create soil bund that surrounds fruit tree to collect rainwater



4. Alternative designs

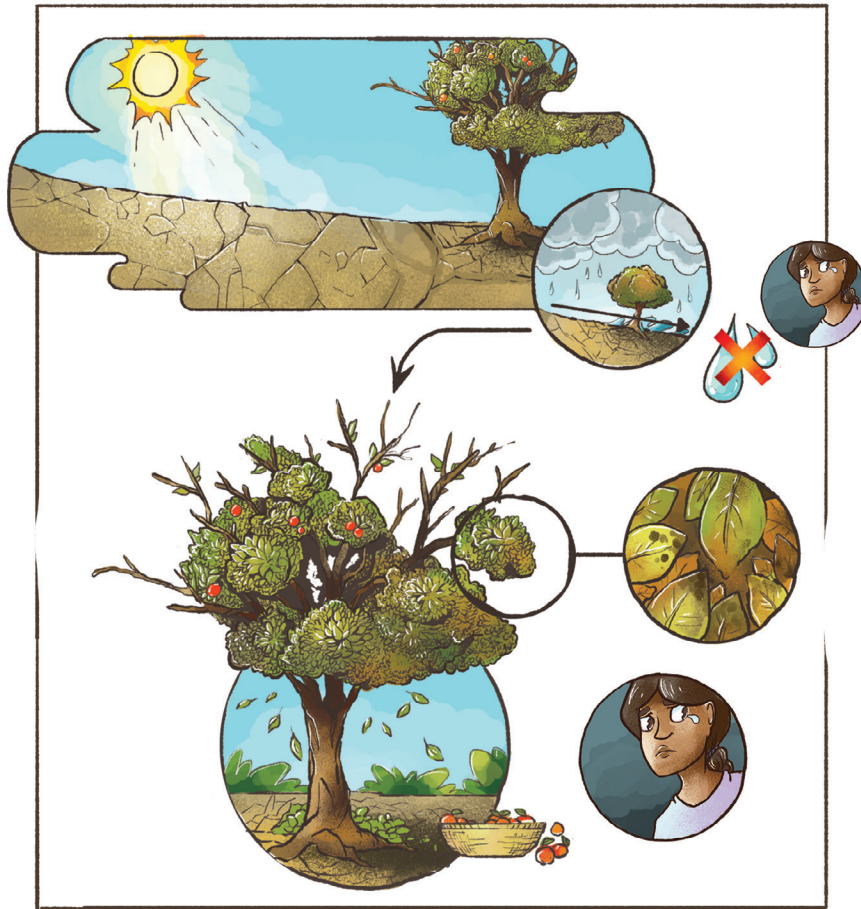


5. Improved yields



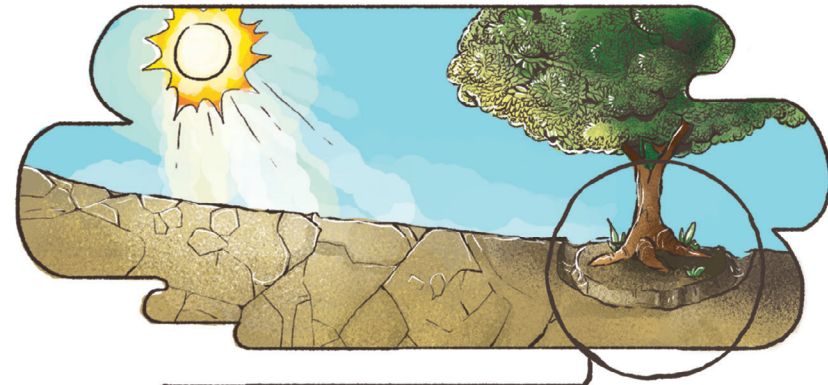
Lesson: Fruit trees can be grown in dry climates by harvesting rainwater around tree using a bund or pit

1. Traditional practice: no water collected

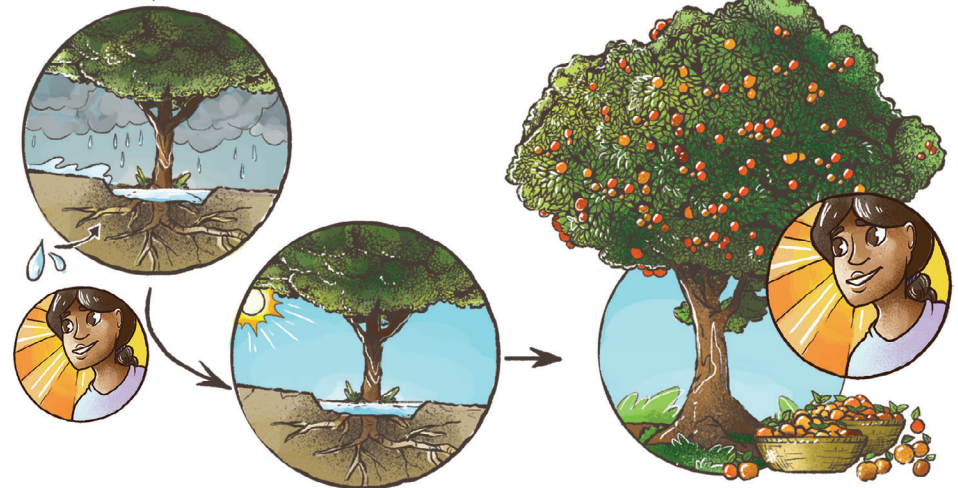


2. Low fruit yield (e.g. apple)

3. Improved practice: create short wall or pit around tree



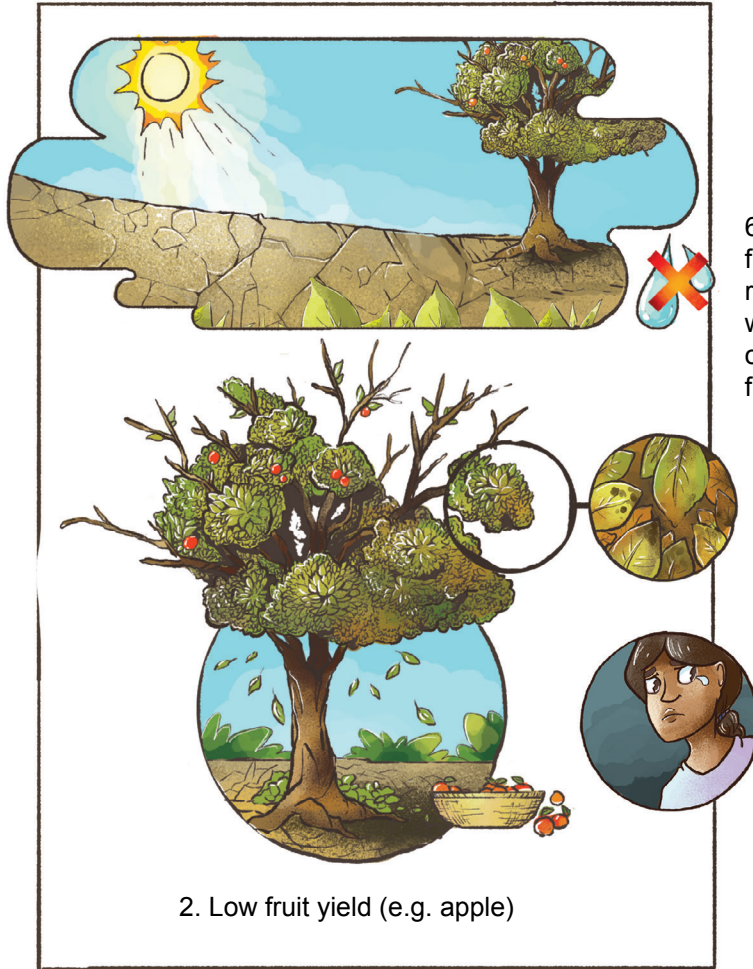
4. Rain collected



5. High fruit yield

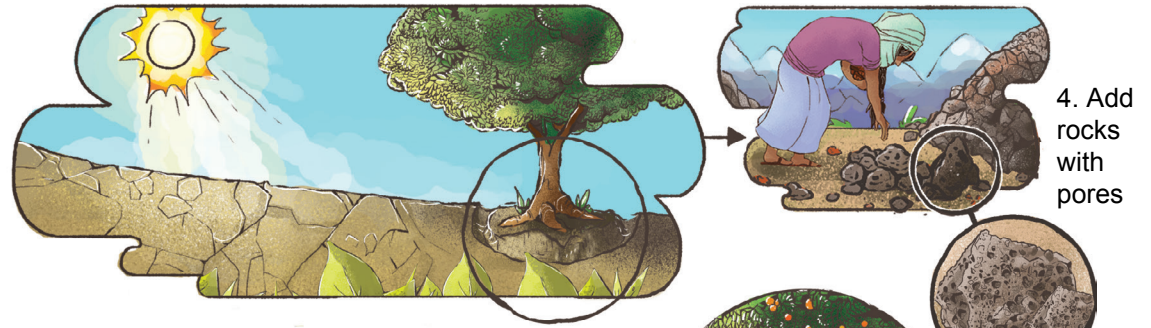
Lesson: Fruit trees can be grown in dry climates by harvesting rainwater around tree using porous rocks

1. Traditional practice: no water collected



2. Low fruit yield (e.g. apple)

3. Improved practice: create short wall or pit around tree

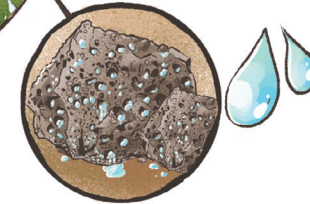


4. Add rocks with pores

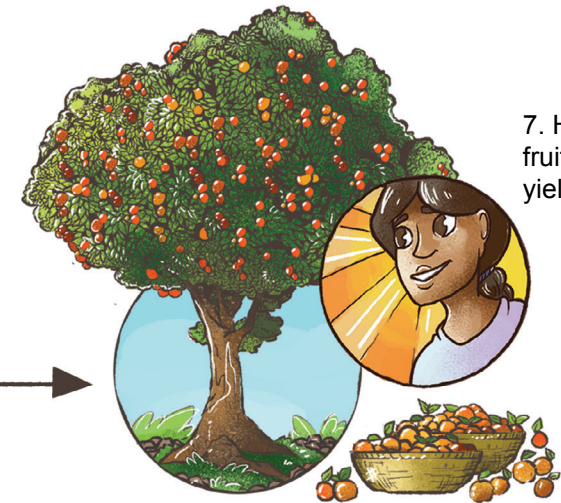
6. Water from rocks will drip onto free roots



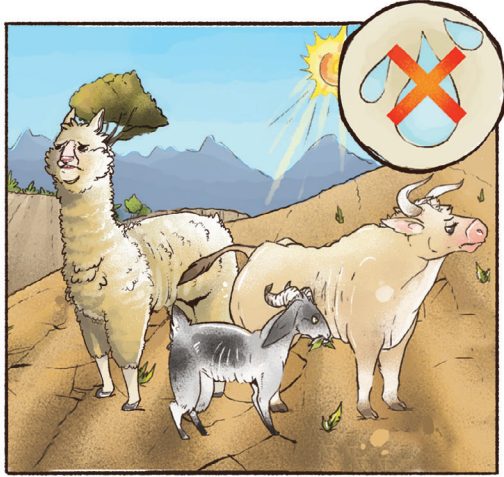
5. Morning dew will collect inside pores



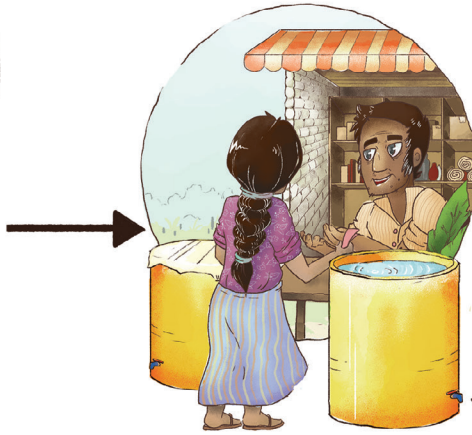
7. High fruit yield



Lesson: Rainwater can be collected



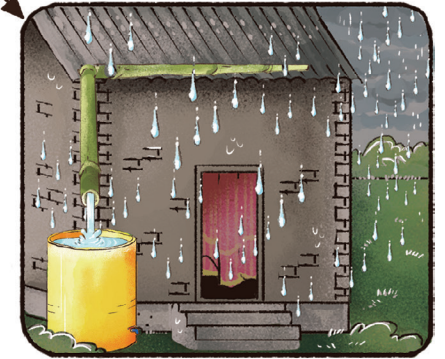
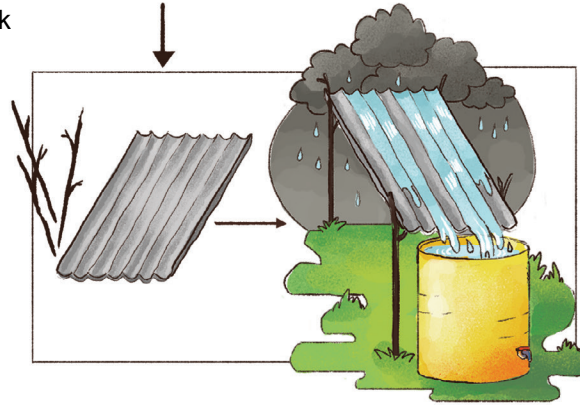
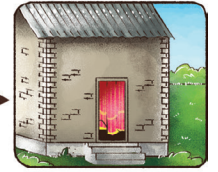
1. Traditionally: no water in dry season



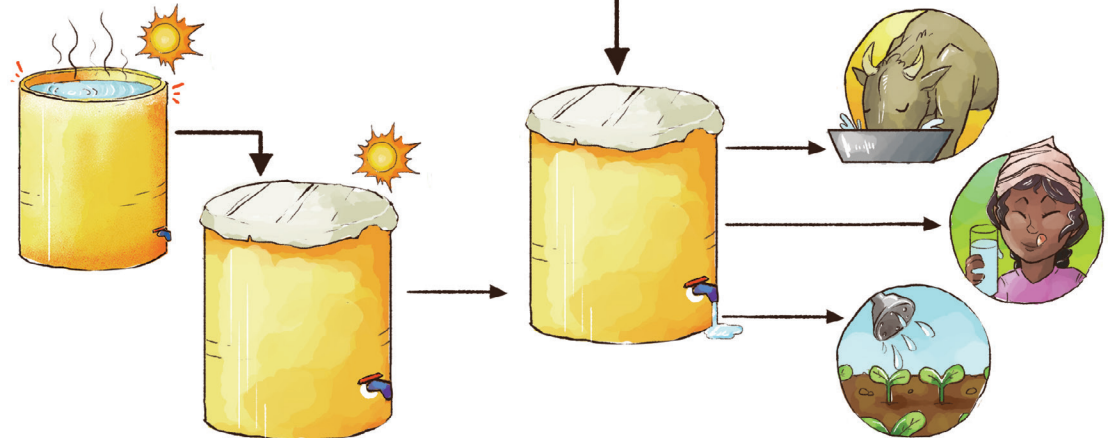
3. Purchase tank from vendor



2. New practice: collect rainwater



4. Many uses of rainwater



Lesson: Cheap foldable plastic tanks or tarpaulins can be used to collect rainwater

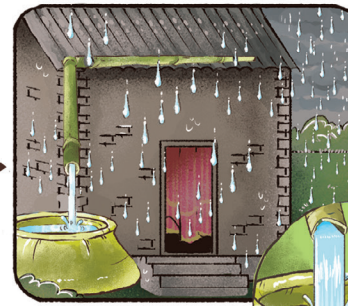


1. Traditional situation: rainfall is lost

2. In dry season, no water



3. New practice is to purchase folding plastic water tank



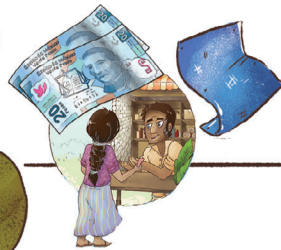
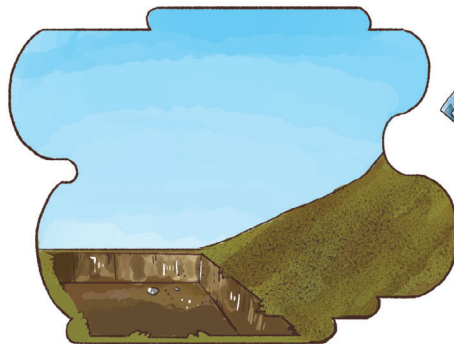
4. Collect rainwater



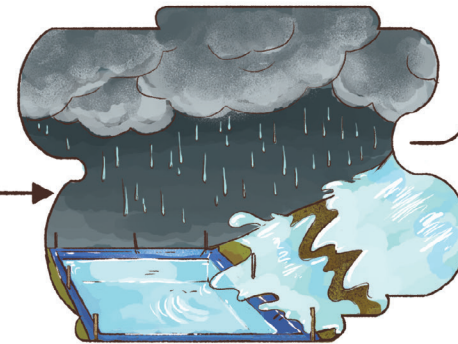
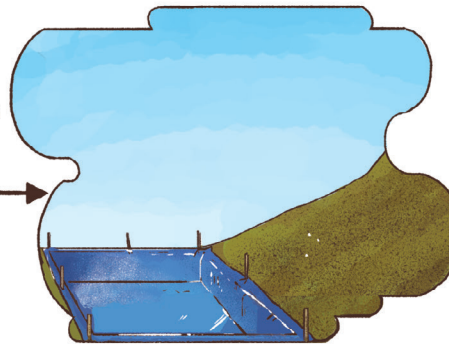
5. Many uses of rainwater



6. Second new practice is to dig pit at bottom of hill.

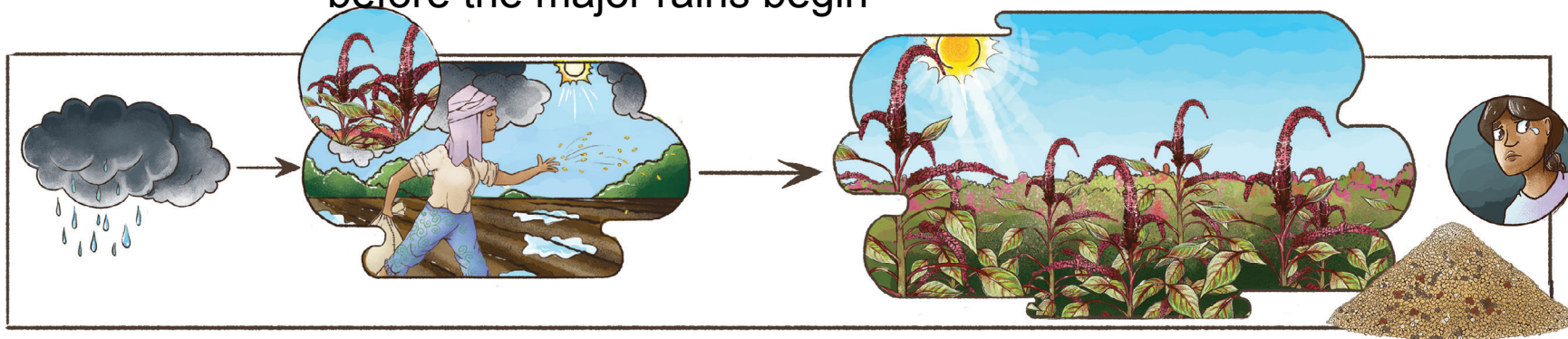


7. Purchase tarpaulin, then line pit



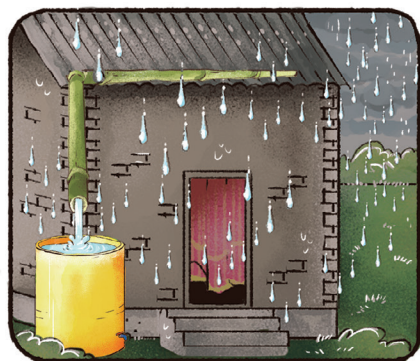
8. Collect rainwater in pit

Lesson: Collected rainwater can be used to irrigate a millet nursery in order to enable sowing before the major rains begin



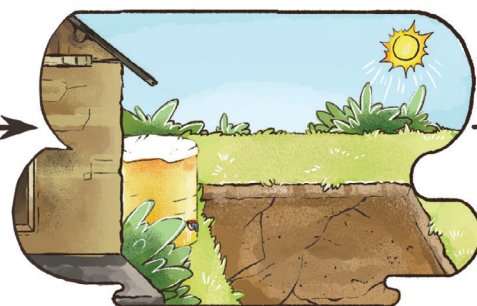
1. Traditional practice is to sow millet seeds after first rainfall

2. If growing season is short, then yield is low.

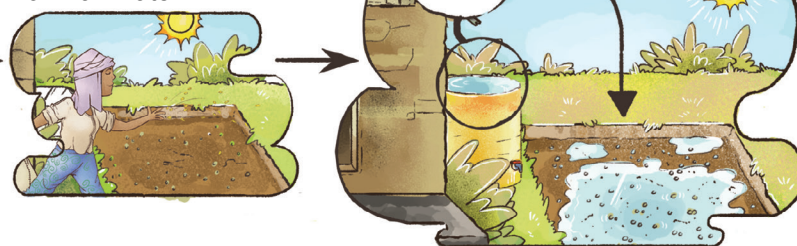


3. New practice is to collect rain during rainy season.

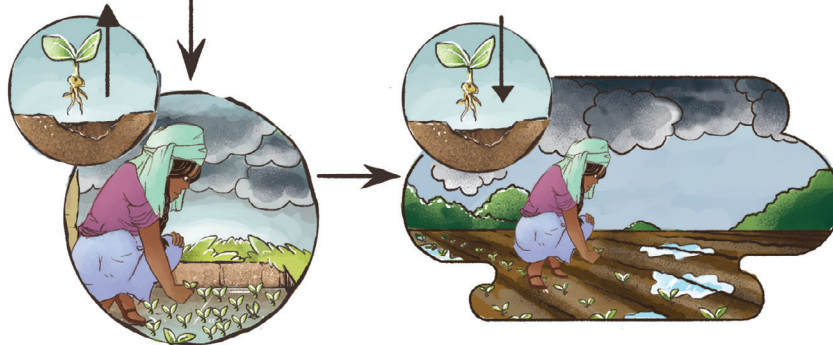
4. Prepare nursery at end of dry season



5. Sow seeds before first rainfall and irrigate from rainwater



6. When rains arrive, transplant seedlings to the field

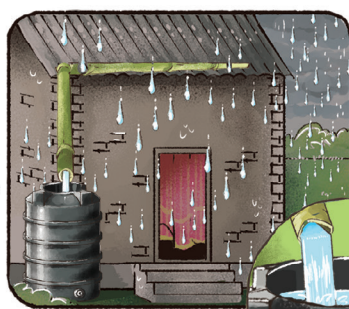
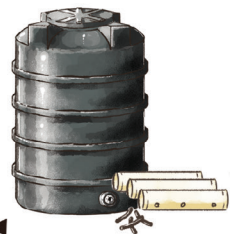


7. Yield is higher because the crop duration was increased

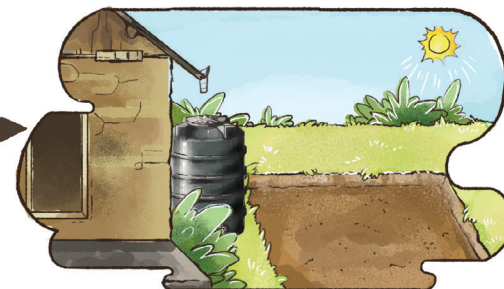
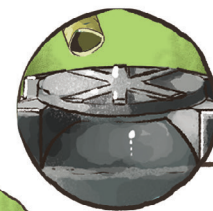


Lesson: Collected rainwater can be connected to pipes with holes to feed water directly to roots

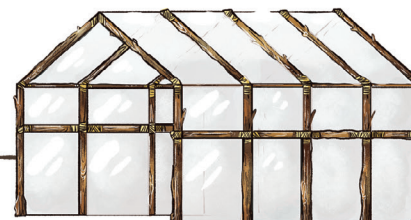
1. New practice is to purchase irrigation kit from vendor (plastic tank and pipes)



2. Rainwater tanks for small nursery



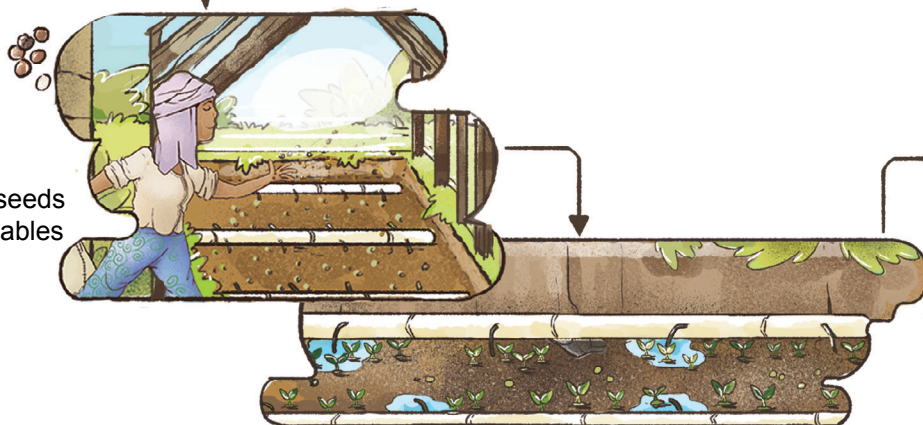
3. Transfer collected water to greenhouse (high tunnel)



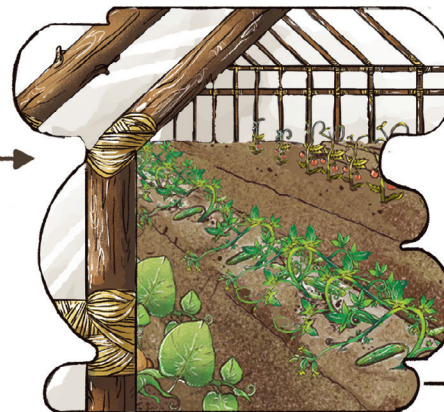
4. Attach rainwater tanks to pipes with holes in small nursery.



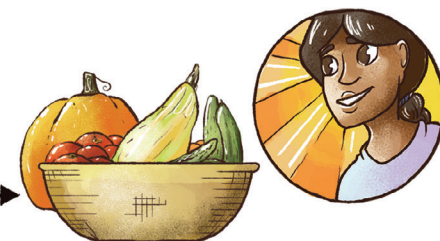
5. Sow seeds of vegetables

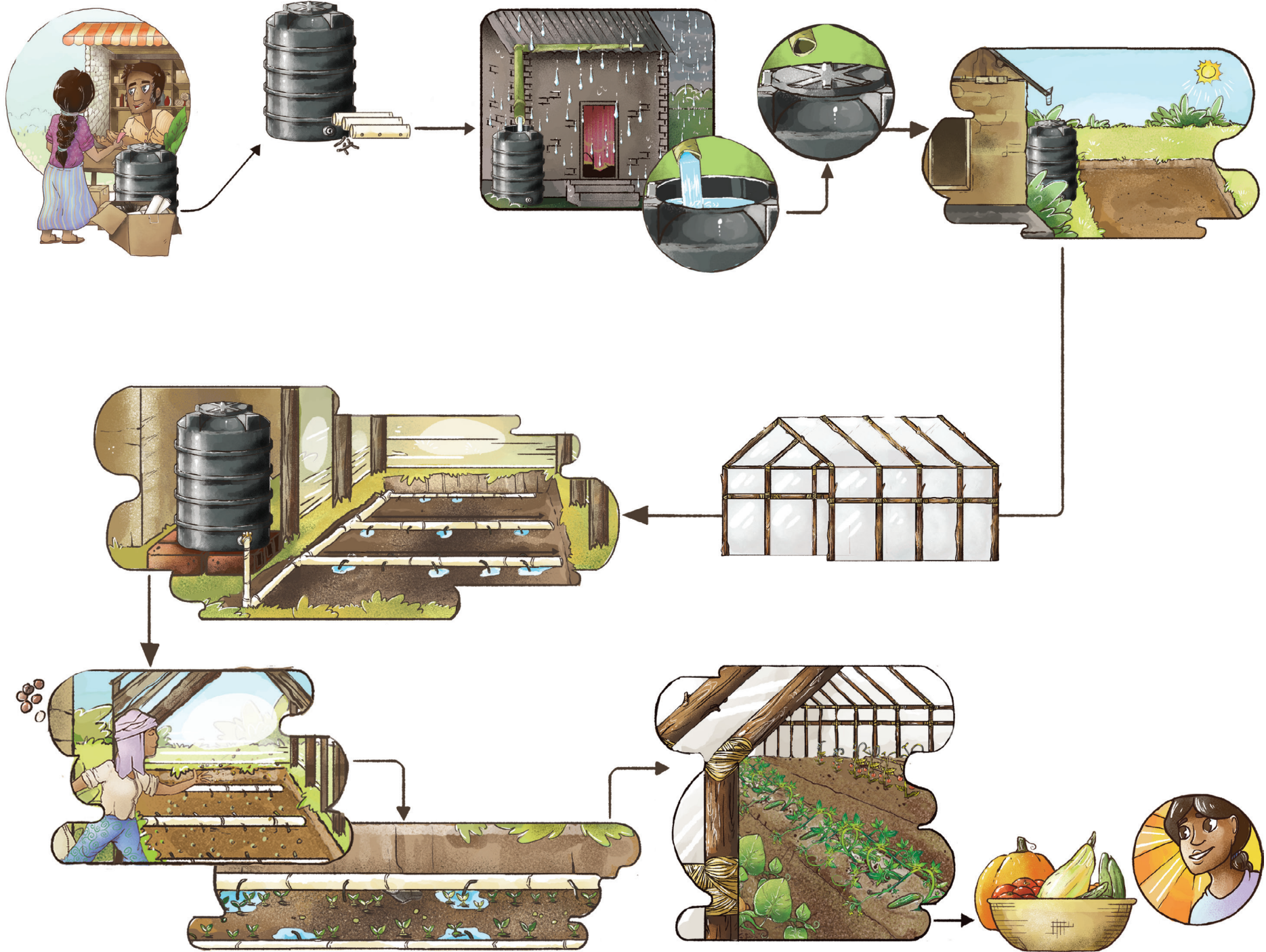


6. Water drips slowly



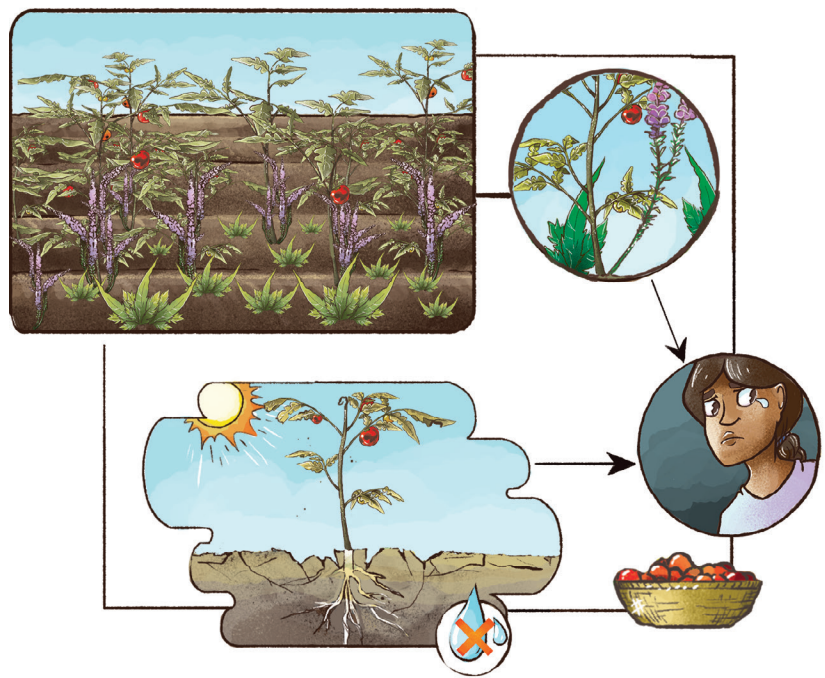
7. Good vegetable production



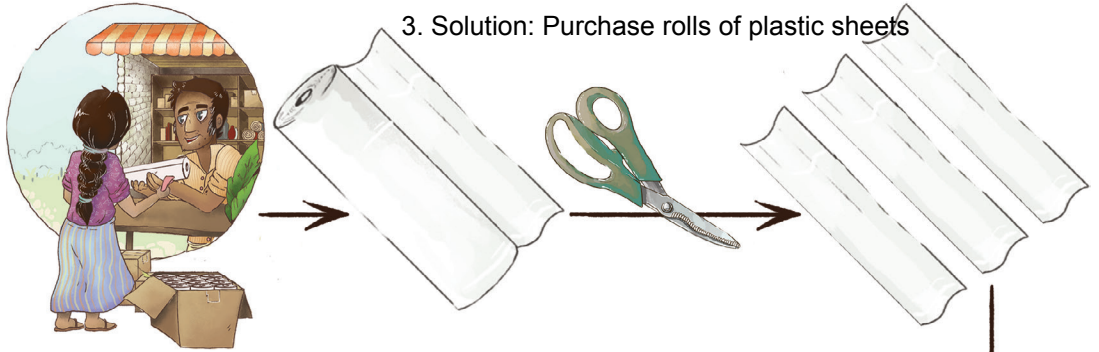


Lesson: Use plastic mulch to suppress weeds in the garden, prevent water loss and keep soil warm.

1. Problem: in garden weeds can grow

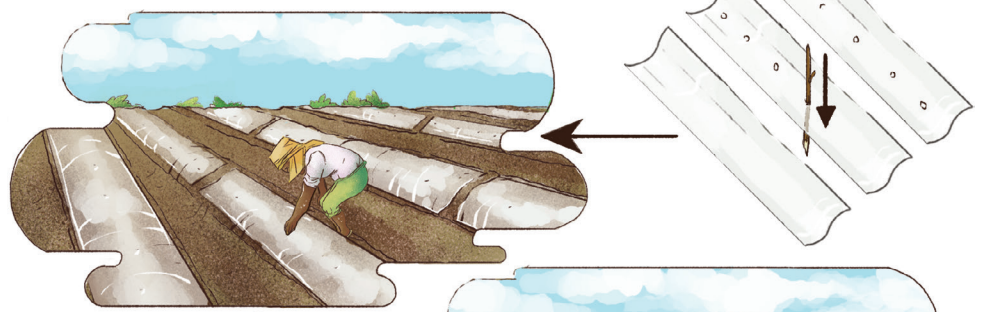


2. Problem: In hot season with low rainfall, crops will not grow.

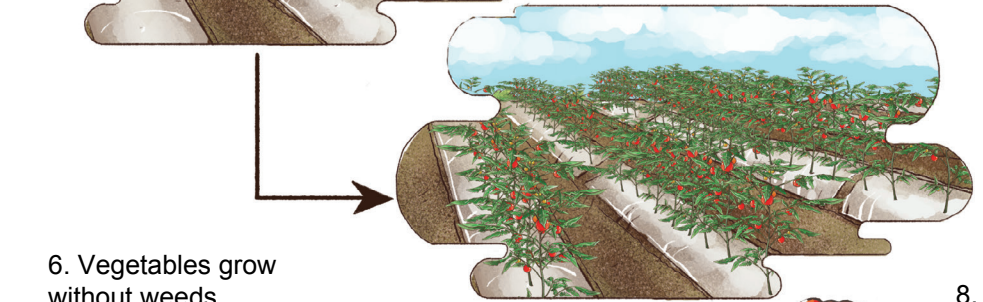


3. Solution: Purchase rolls of plastic sheets

4. Place on ground, create holes.



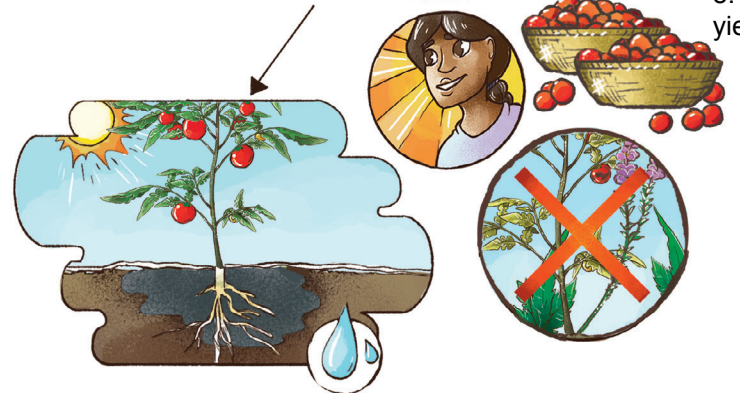
5. Sow seeds in holes



6. Vegetables grow without weeds.

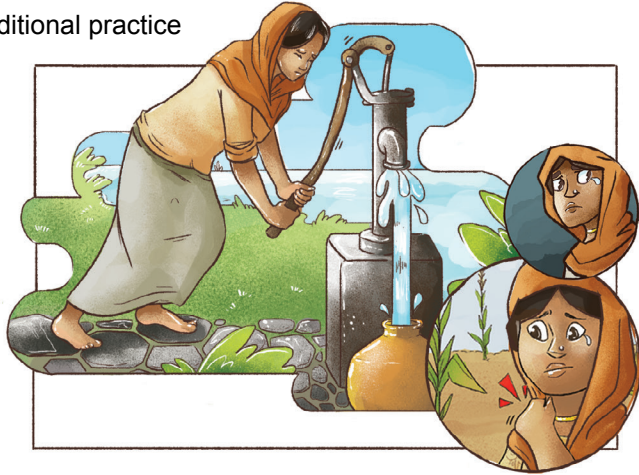
8. High yield

7. Plastic prevents water from evaporating and keeps the soil warm.

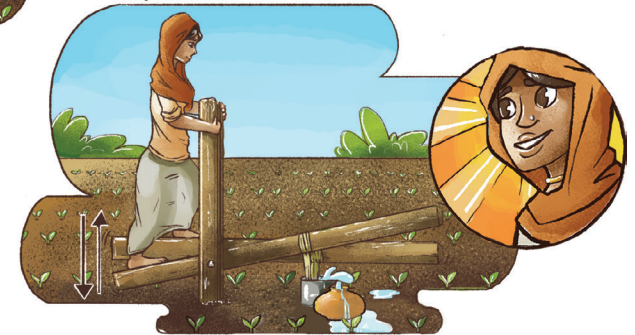
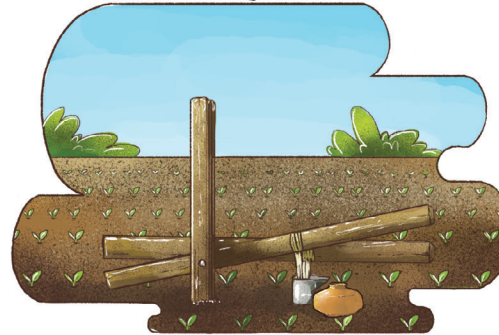


Lesson: There are improved machines to pump water from a well that reduce labour

1. Traditional practice



2. Improved machine: foot treddle pump available at vendor



3. Alternative improved machine: bicycle pump available at vendor

