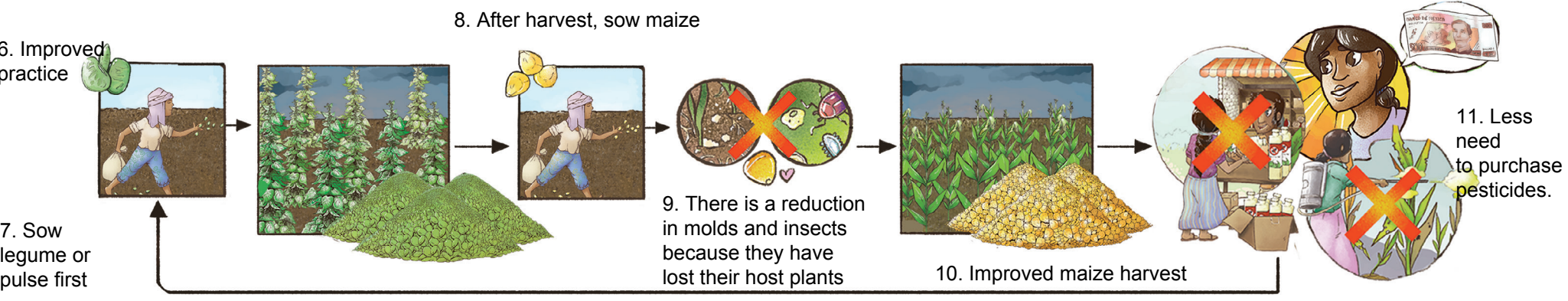
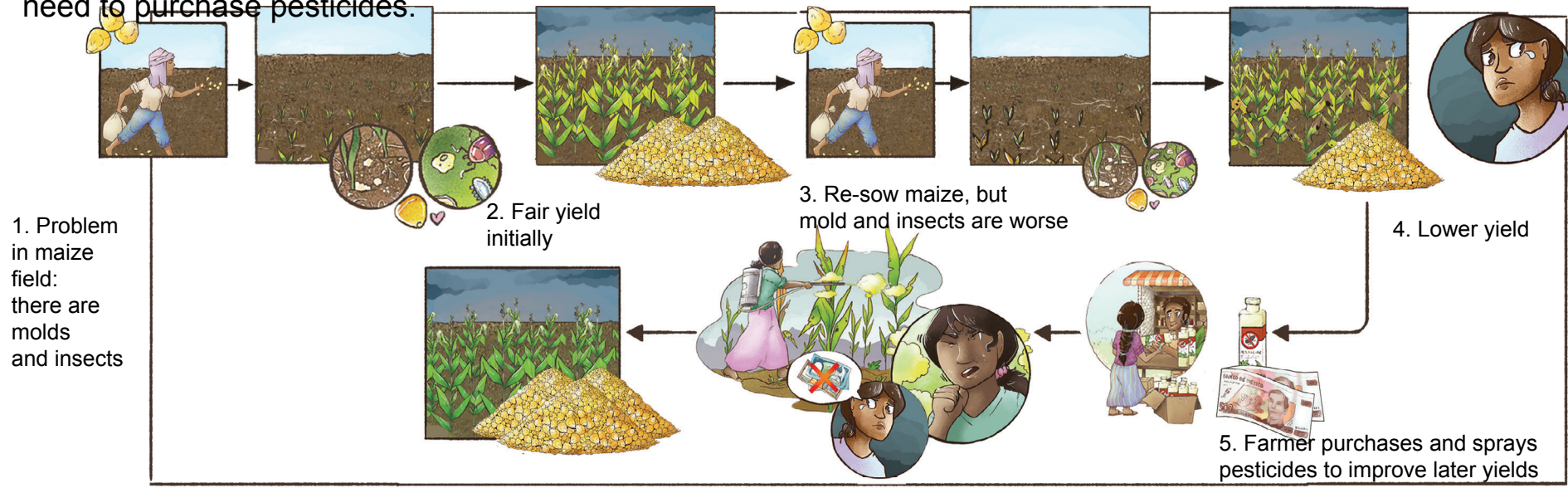
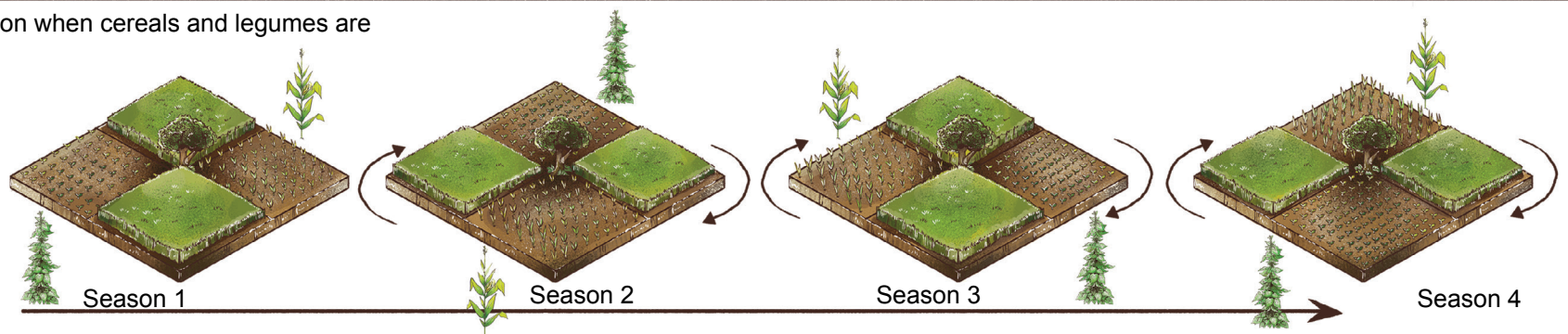


Lesson: Rotating a cereal crop (e.g. maize) with a legume crop (e.g. beans) will reduce pests and diseases and reduce need to purchase pesticides.

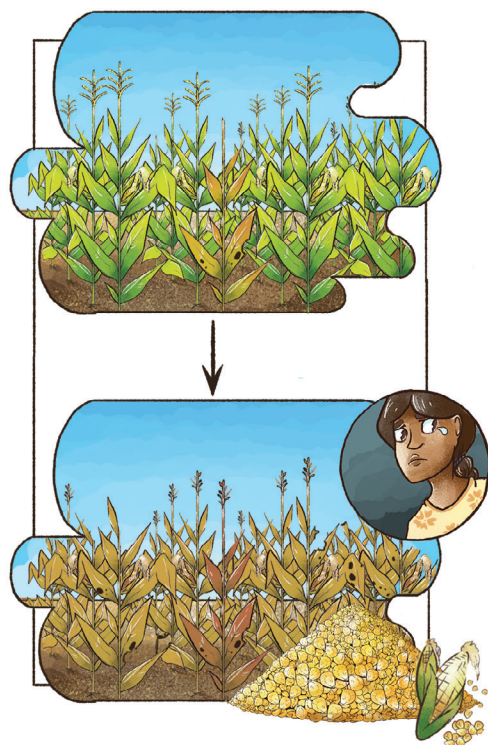


12. Repeat rotation

13. Crop rotation when cereals and legumes are grown in adjacent plots

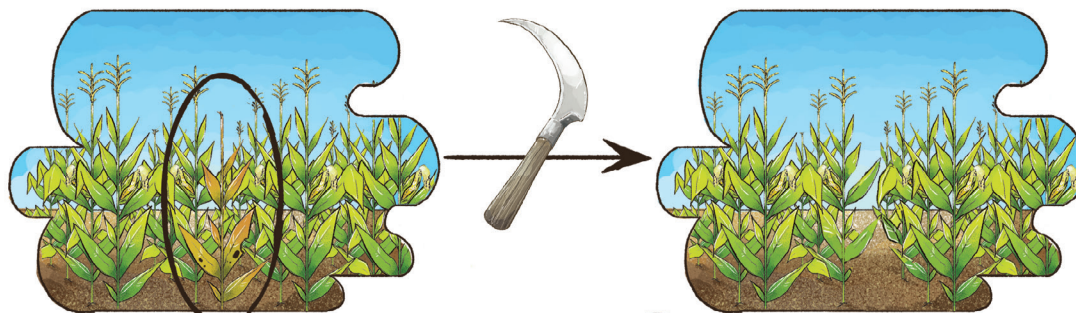


# Lesson: Constantly visual inspect fields for sick plants and remove them in order to improve the health of the field

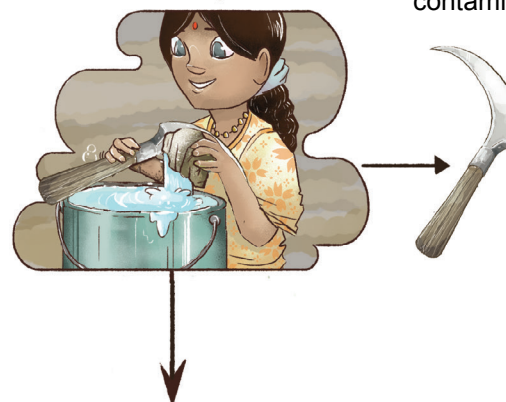


1. Traditional practice: sick plants are allowed to remain in field. Many plants become sick, low yields

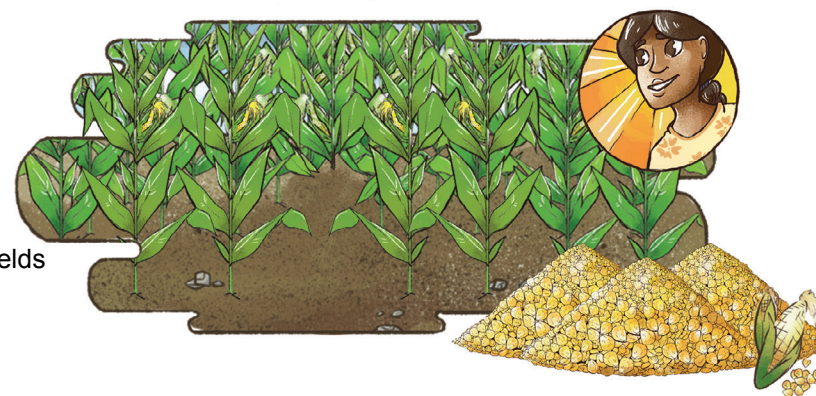
2. Improved practice: remove sick plants immediately to prevent spread of disease or pests



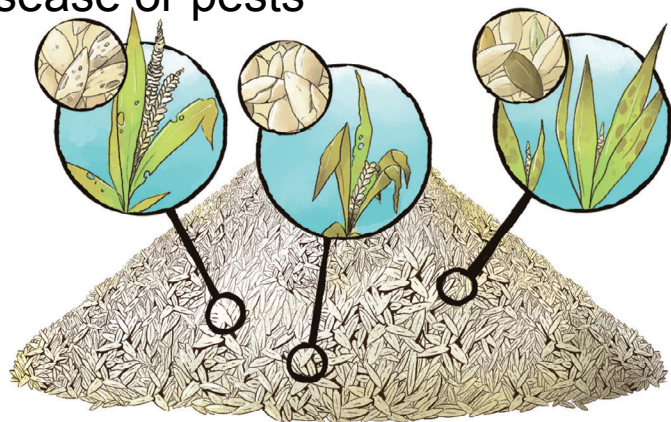
3. Wash the cutting knife as it may be contaminated with disease or pest



4. Field is healthy, high yields



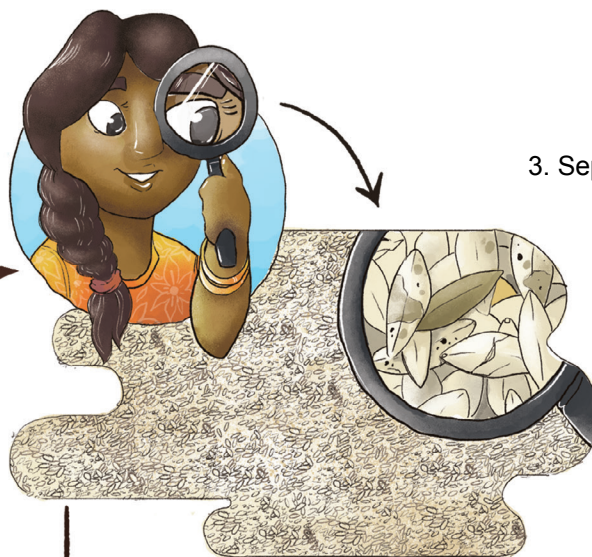
# Lesson: Before sowing seeds, use a magnifying glass/sheet to help remove seeds with disease or pests



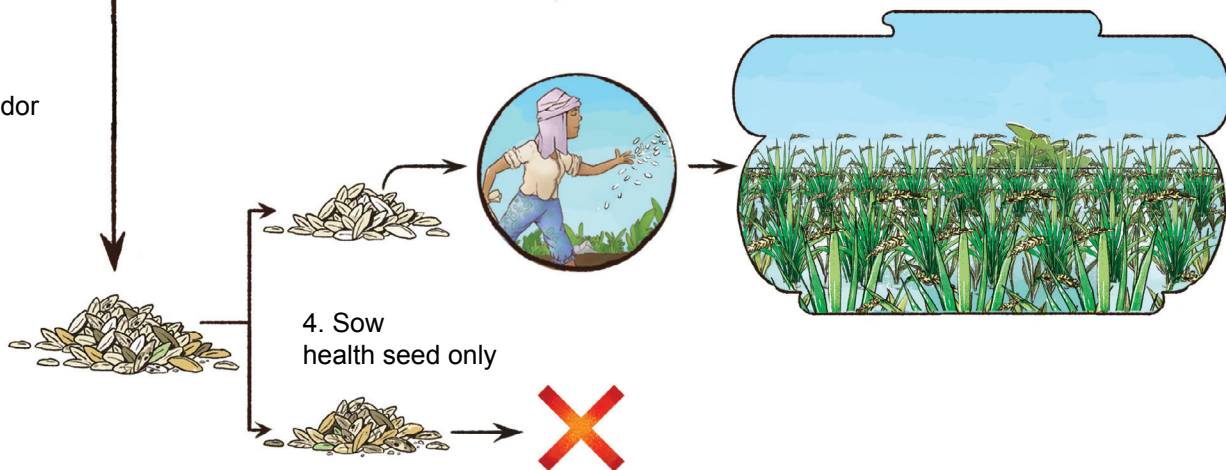
1. Seeds for sowing may have small spots or damage due to insects or mold



2. Purchase magnifying glass/sheet from vendor

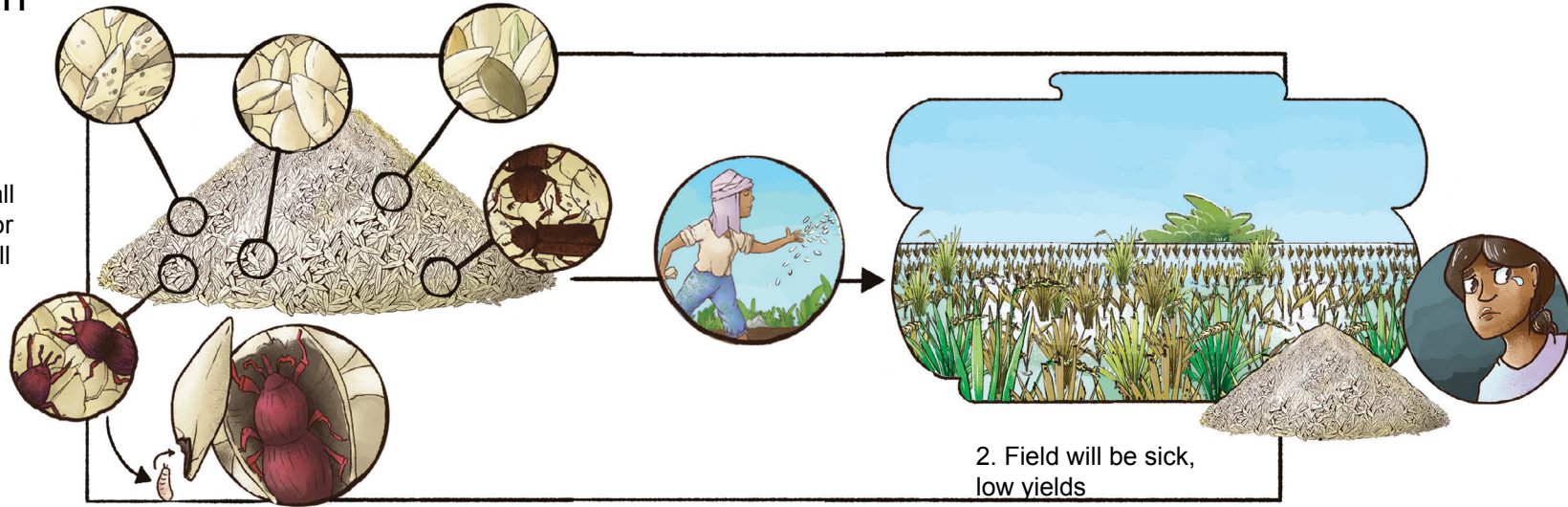


3. Separate unspotted, undamaged seed

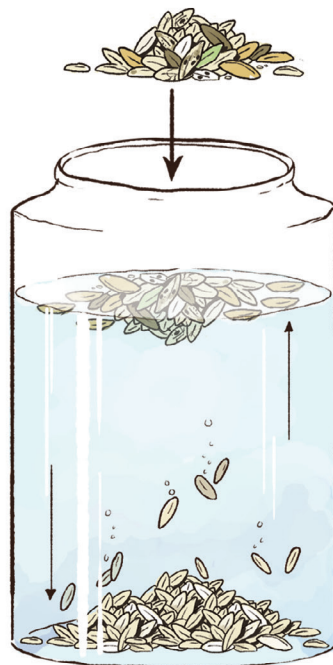


# Lesson: Healthy seeds can be easily separated from sick seeds prior to sowing using water floatation

1. Traditional practice: seeds with small disease spots or containing small insects may be missed, and sown in field

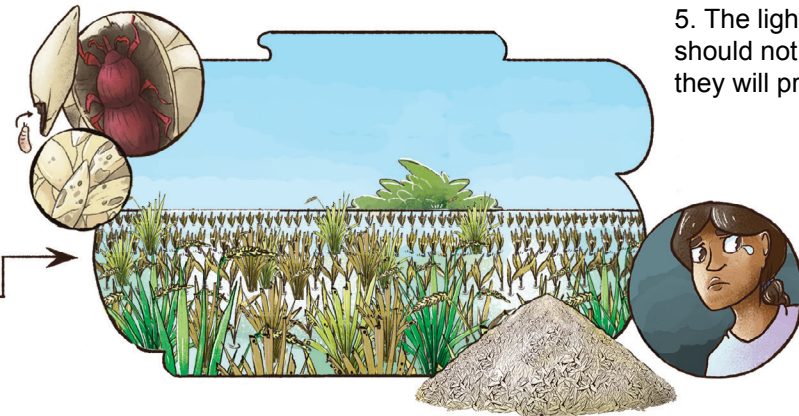


3. Improved practice: Add seeds to water.



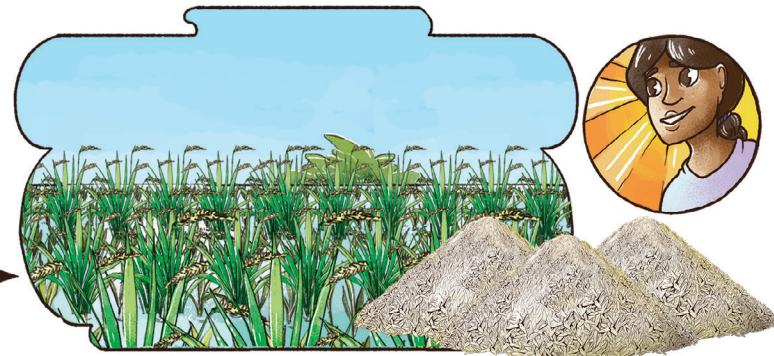
6. Healthy seeds are heavy and will sink

4. Sick seeds are light-weight and will float.



5. The light-weight seeds should not be planted as they will produce a sick field

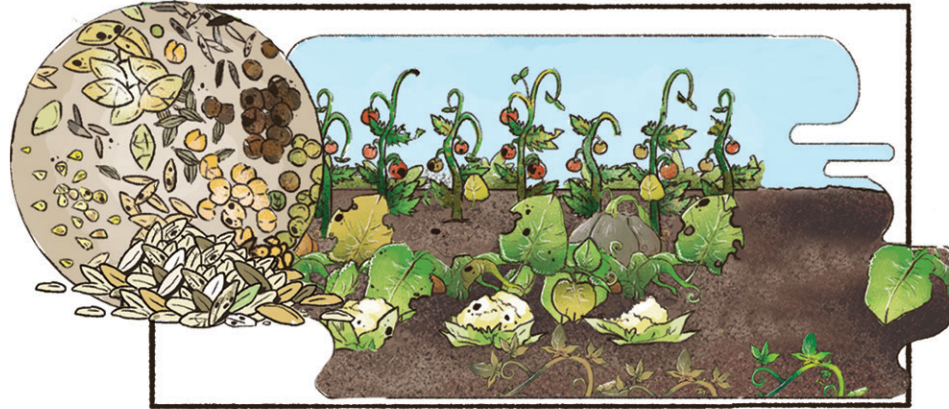
7. The heavy seeds will produce a healthy field



8. If seed size is large, then salt should be added to jar to better enable seed separation

# Lesson: Gently heat treating vegetable seeds prior to sowing can reduce crop disease

1. Traditional practice: seeds may contain disease leading to field diseases



3. Incubate for 1 hour. Heat will kill some diseases

2. Improved practice: Purchase a thermometer from a vendor, then add water pre-heated to 45°C to seeds



5. Be careful: excess temperature or time will kill seeds.

4. Vegetable garden may be healthier but if the water temperature is too high, then seeds will be damaged

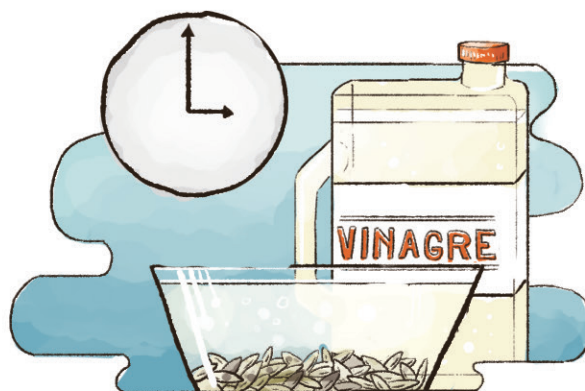


Lesson: Instead of spraying chemical pesticide or biopesticide in the field, it is less expensive and less labour to initially remove pests and disease from seeds before sowing, using vinegar.

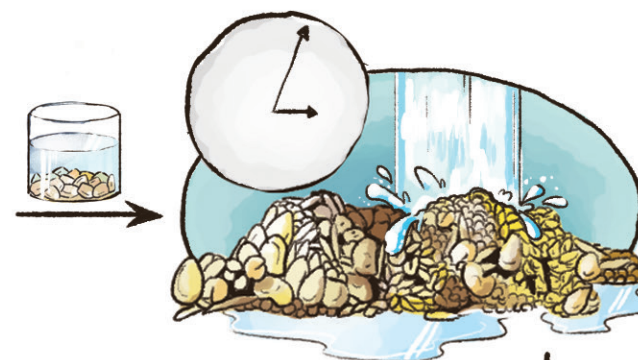
1. Problem: vegetables damaged by pests and disease



2. Partial solution: soak seeds for a few minutes in vinegar



3. Rinse with water



4. Sow seeds

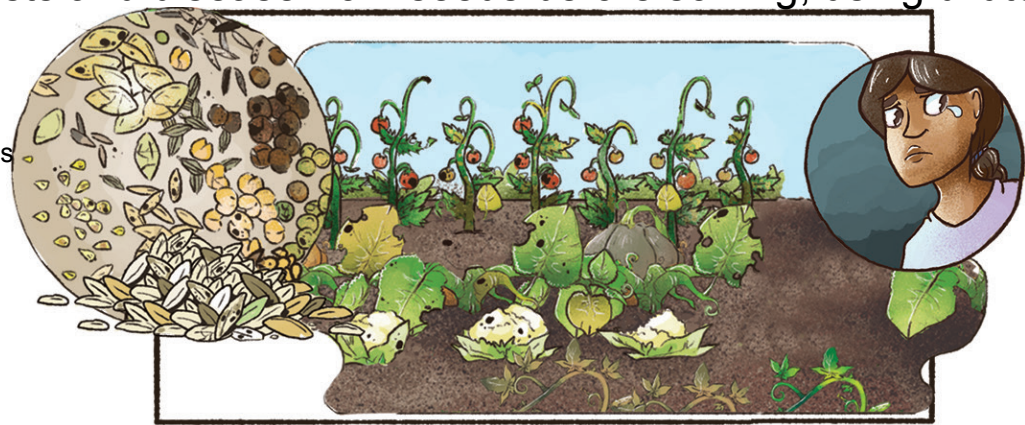
5. Healthier plants



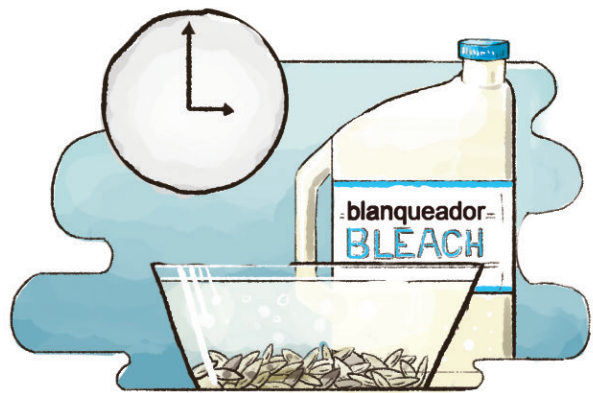
6. Be careful, excess concentration or time of vinegar will kill seeds. It is recommended to try different dilutions and durations of the treatment, and then sow the seeds to ensure germination is not reduced.

Lesson: Instead of spraying chemical pesticide or biopesticide in the field, it is less expensive and less labour to initially remove pests and disease from seeds before sowing, using diluted bleach.

1. Problem: vegetables damaged by pests and disease



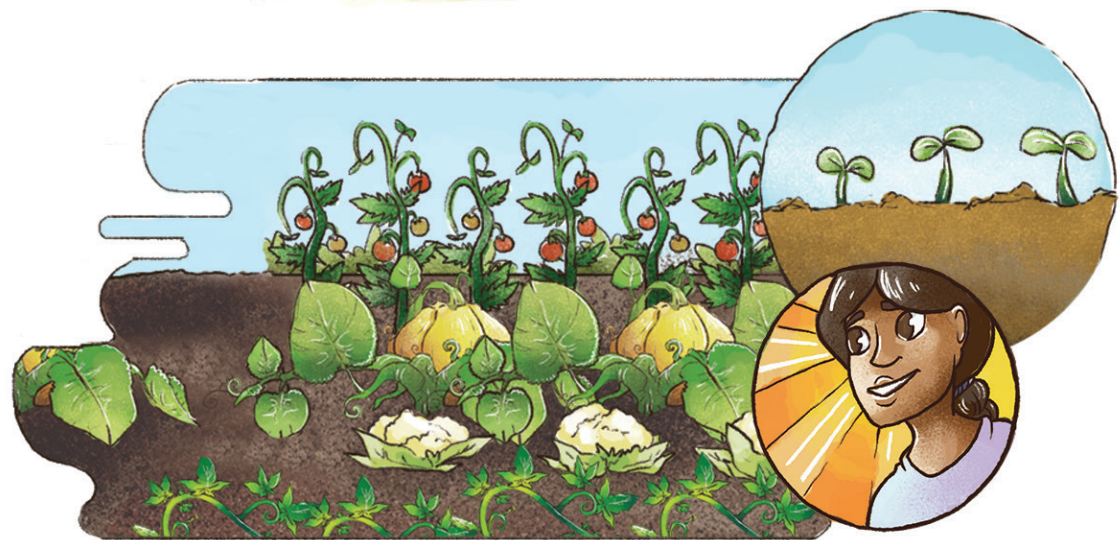
2. Partial solution: soak seeds for a few minutes in diluted bleach



3. Rinse with water



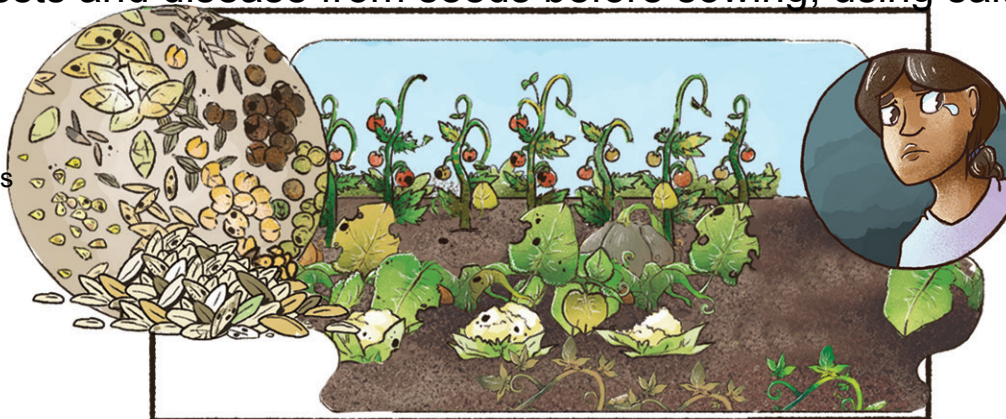
4. Sow seeds



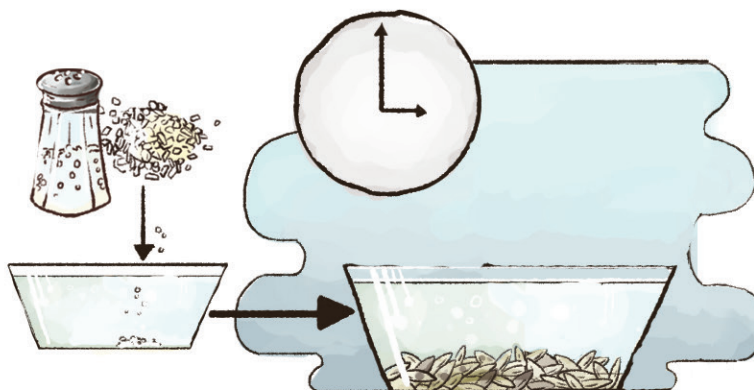
6. Be careful, excess concentration or time of vinegar will kill seeds. It is recommended to try different dilutions and durations of the treatment, and then sow the seeds to ensure germination is not reduced.

Lesson: Instead of spraying chemical pesticide or biopesticide in the field, it is less expensive and less labour to initially remove pests and disease from seeds before sowing, using salty water.

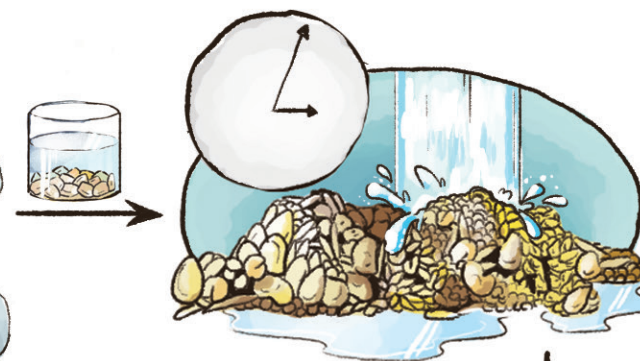
1. Problem: vegetables damaged by pests and disease



2. Partial solution: soak seeds for a few minutes in very salty water

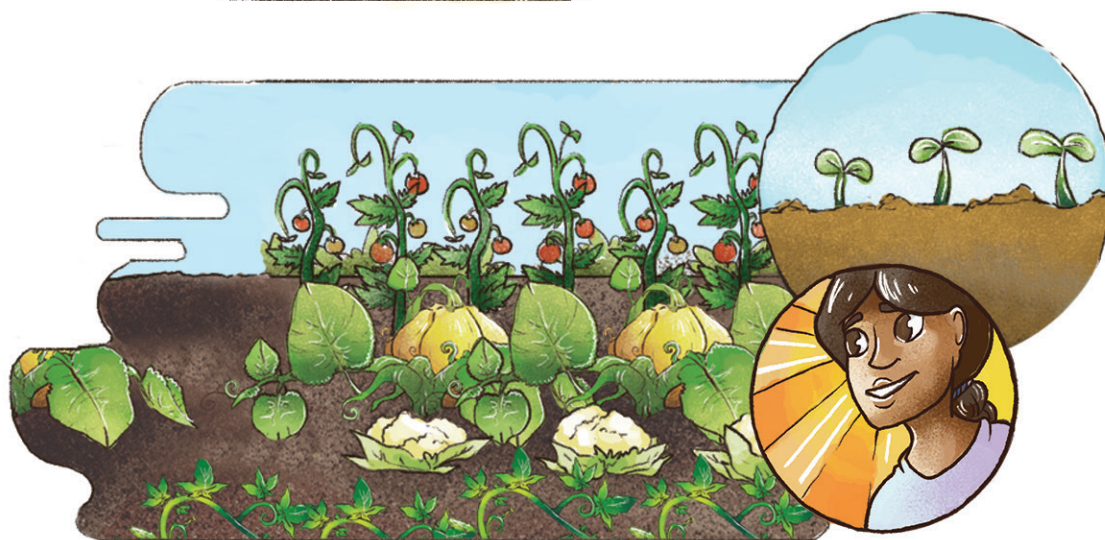


3. Rinse with non-salty water



4. Sow seeds

5. Healthier plants

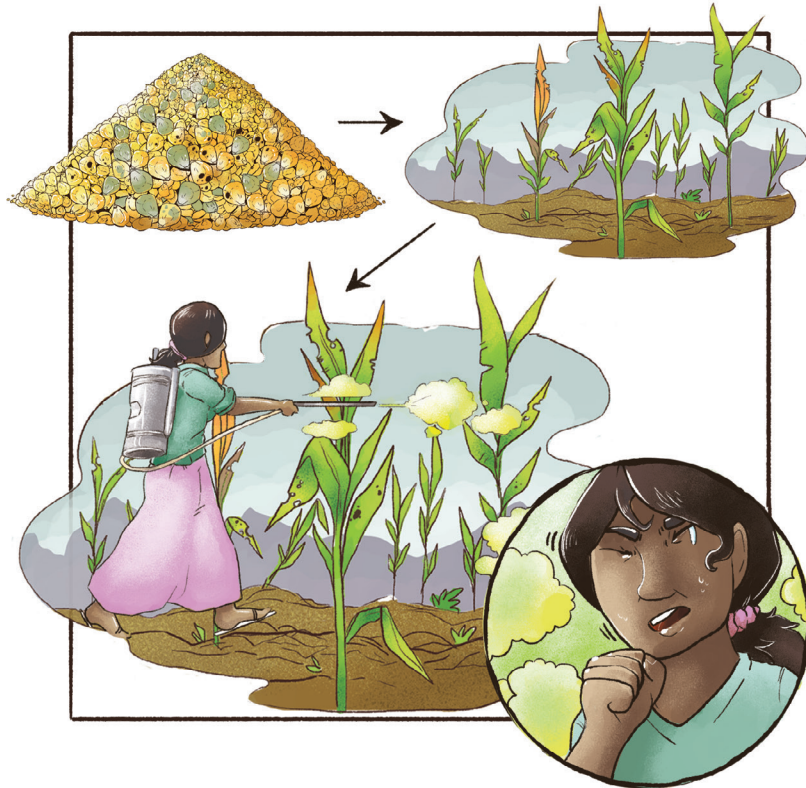


6. Be careful, excess concentration or time of vinegar will kill seeds. It is recommended to try different dilutions and durations of the treatment, and then sow the seeds to ensure germination is not reduced.

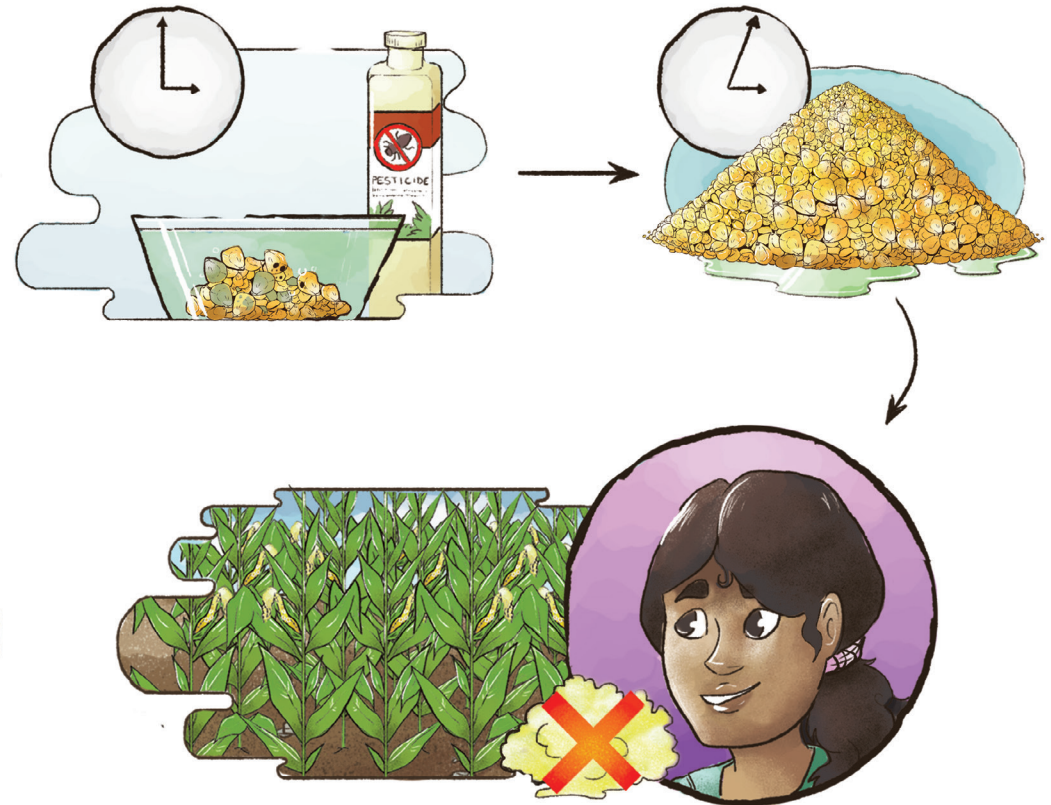


Lesson: Instead of spraying chemical pesticide or biopesticide in the field, it is less expensive and less labour to coat seeds with these chemicals before sowing

1. Traditional practice



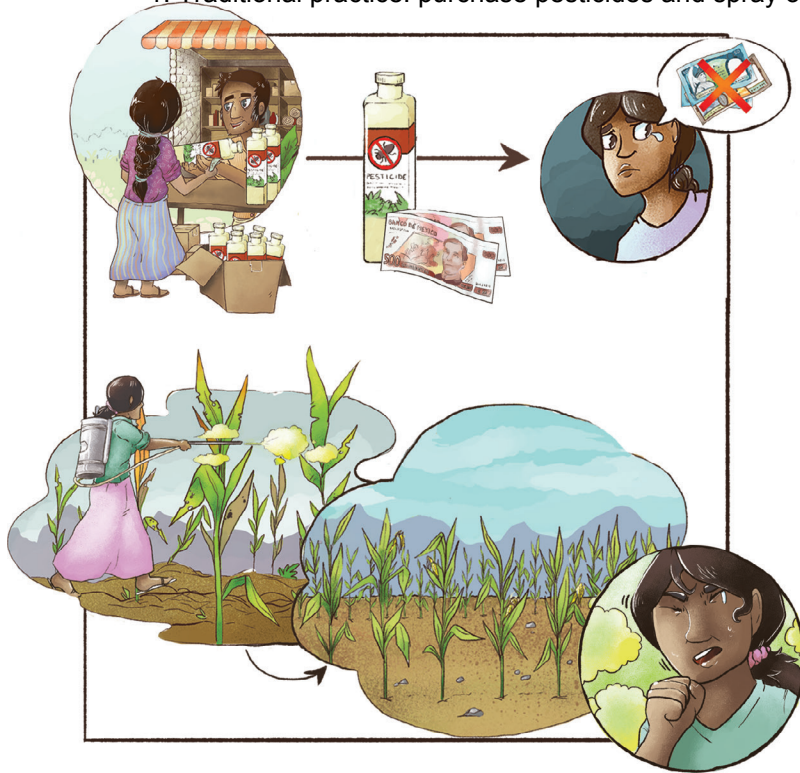
2. Improved practice: soak seeds in pesticide prior to sowing



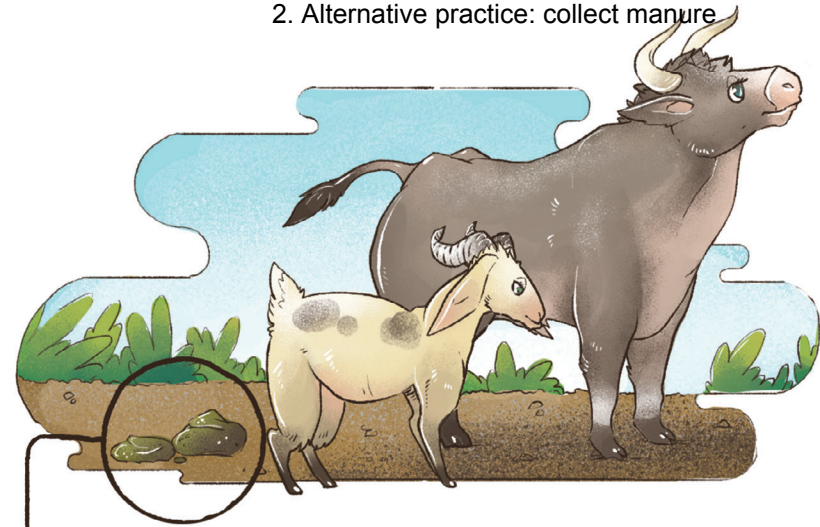
3. Less spraying in the field

# Lesson: Manure soaked in water can be added to seeds before sowing to fight crop disease

1. Traditional practice: purchase pesticides and spray onto field



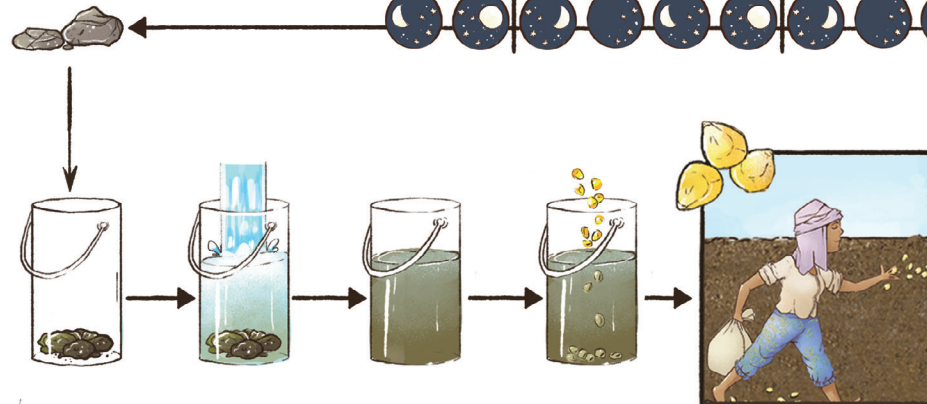
2. Alternative practice: collect manure



3. Dry manure in sun for many days to kill harmful microbes

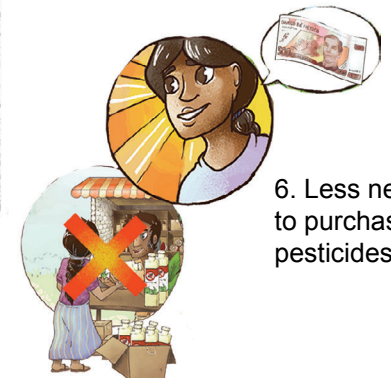


4. Add manure to water



5. Soak seeds in the diluted manure. Healthy microbes in manure will fight microbes that damage crops.

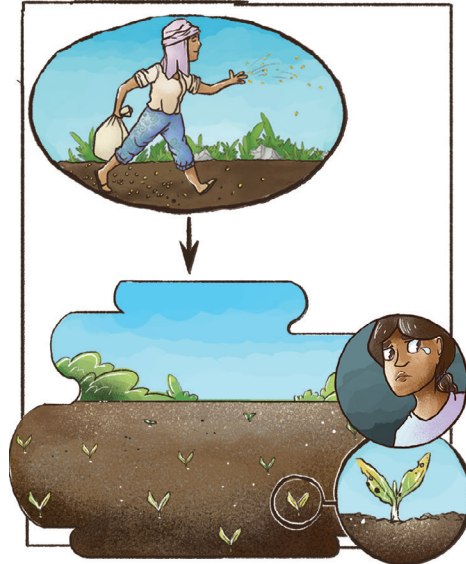
6. Less need to purchase pesticides.



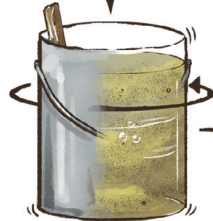
# Lesson: An indigenous bio-pesticide (Bijamrita) added to seeds before sowing improves germination and fights crop disease

2. Biopesticide:  
Ingredients required -  
cow manure, cow urine  
and limestone

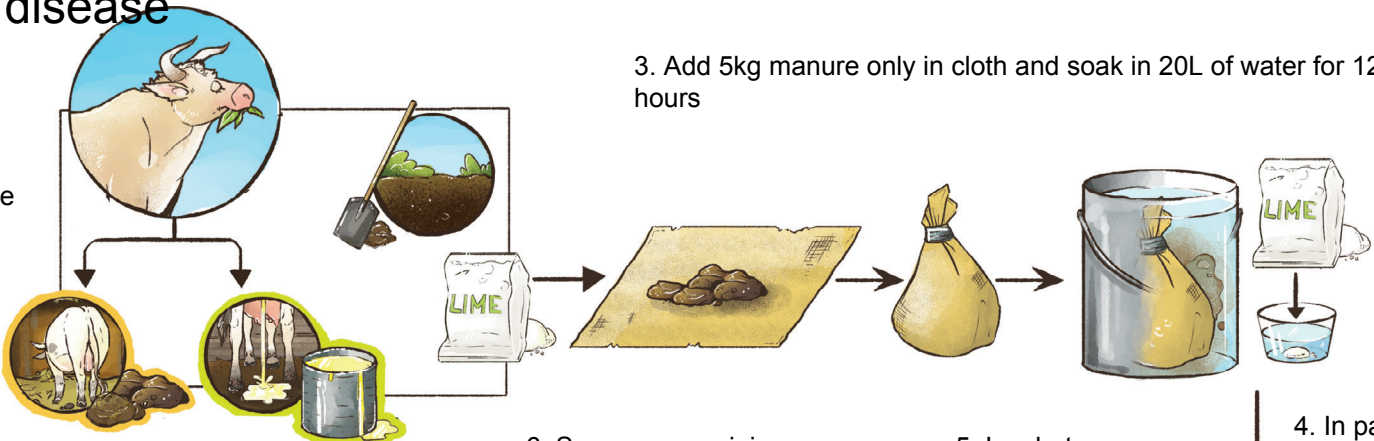
1. Traditional practice:  
low germination,  
unhealthy seedlings



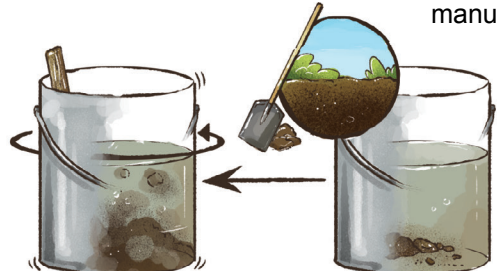
8. Add 5L  
cow urine  
and now  
add the 1L  
of limestone  
water, then  
stir.



3. Add 5kg manure only in cloth and soak in 20L of water for 12 hours



6. Squeeze remaining  
manure juice out.

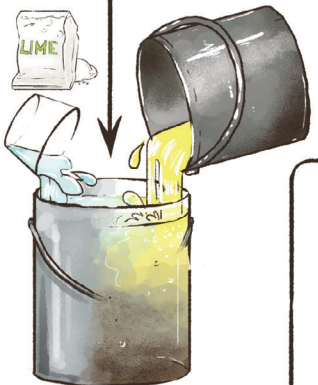


5. Incubate  
limestone  
water  
overnight



4. In parallel,  
add 50g  
limestone  
powder to  
1L of water

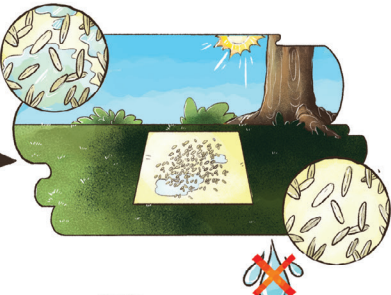
7. Add handful of soil (contains healthy  
microbes)



9. Soak seeds for a  
few minutes



10. Allow seeds to  
gently dry



12. High germination, healthy seedlings



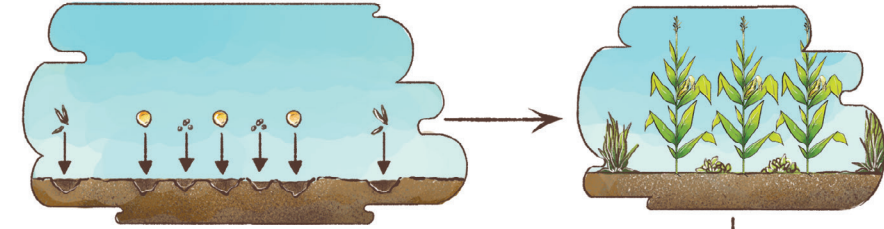
11. Sow seeds

# Lesson: Intercropping with Desmodium cover crop and Napier grass as a border crop reduces flying insects

2. Improved practice: purchase Desmodium and Napier grass seed from vendor



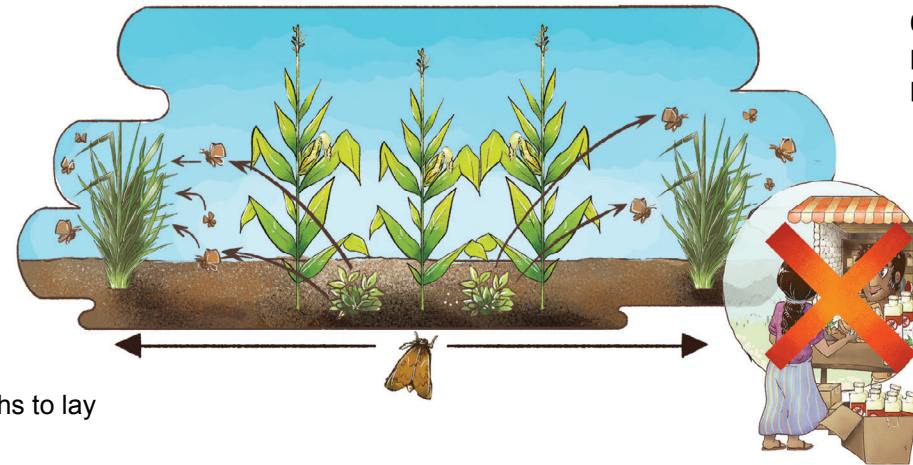
1. Traditional practice: expensive pesticides are purchased from vendor and sprayed



3. Intercrop with Desmodium



4. Border row of Napier grass



6. Less need to purchase pesticides

5. Desmodium produces a gas scent that pushes insect moths away from field. Napier grass produces a gas scent that attracts moths to lay their eggs and hence pulls them out of field.



7. Desmodium also enriches soil. Desmodium and Napier are also livestock feeds.

# Lesson: Replenishing the natural foods of wild animals may prevent them from attacking human crops



3. Improved practice: Collect seeds to grow the tree fruits of the wild animals

