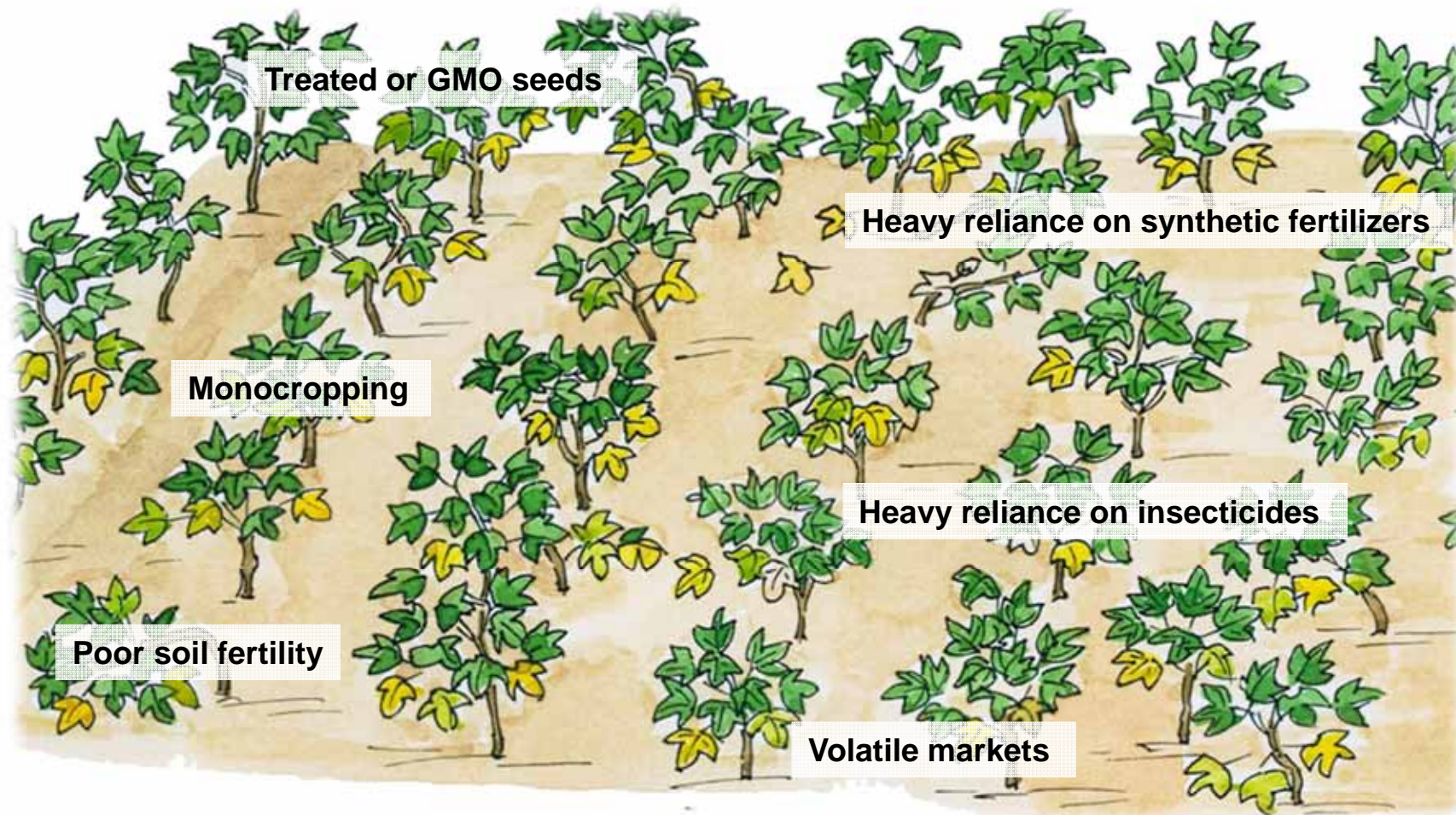
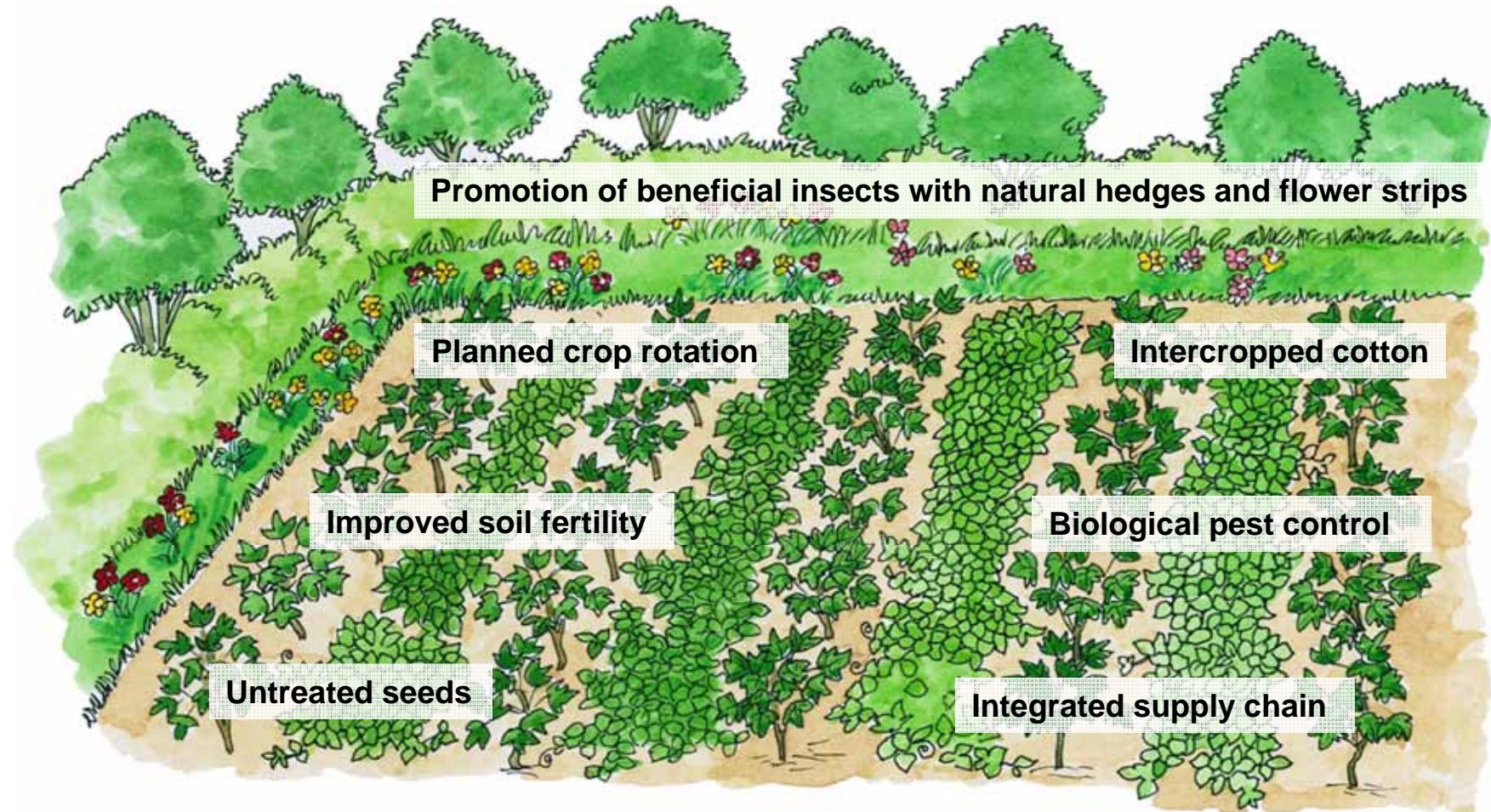


Common situation in cotton production

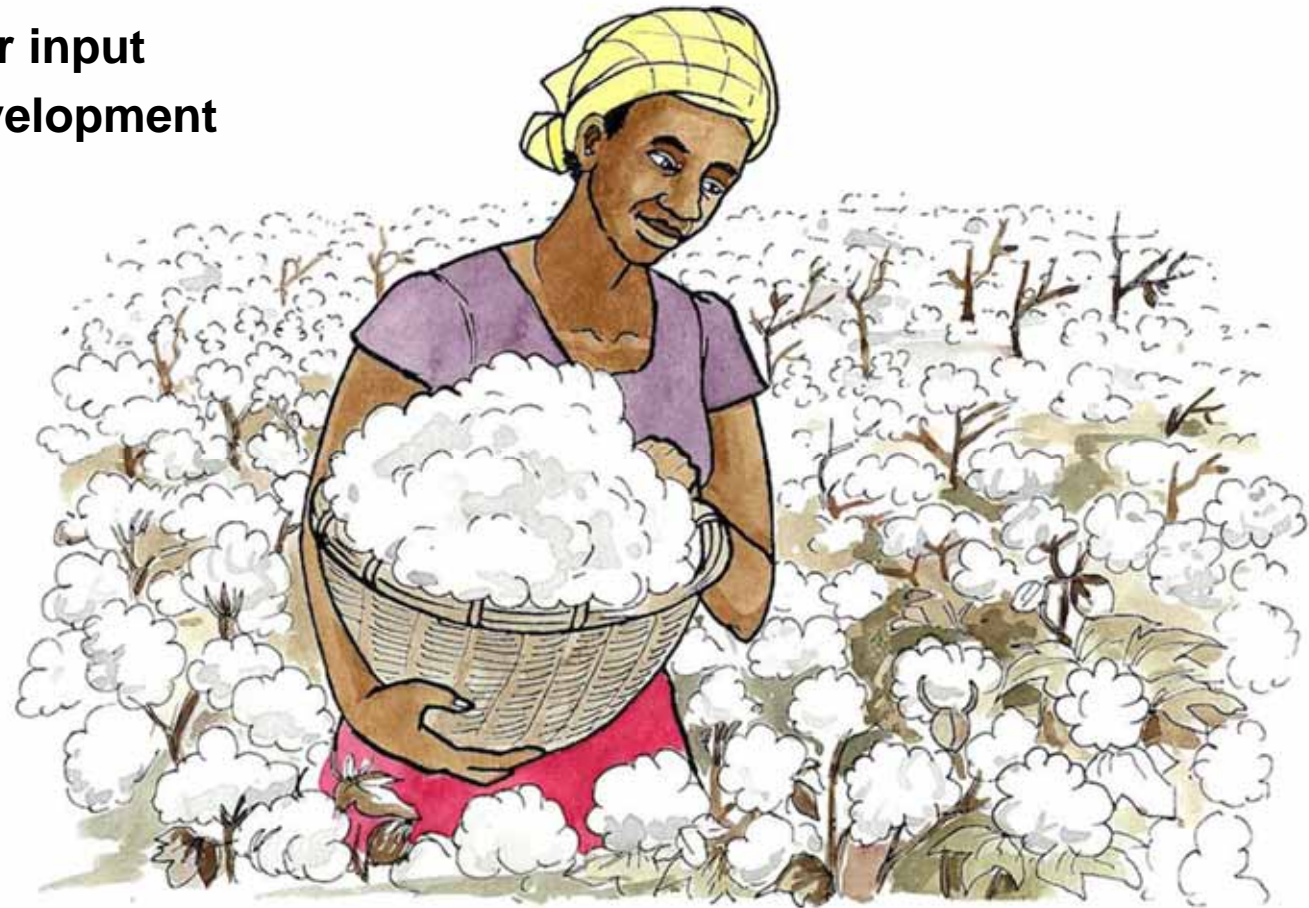


Improved cotton production situation



Strategies to develop organic cotton production

- › **Increasing the scale of production**
- › **Biological pest control**
- › **Reducing labour input**
- › **Institutional development**

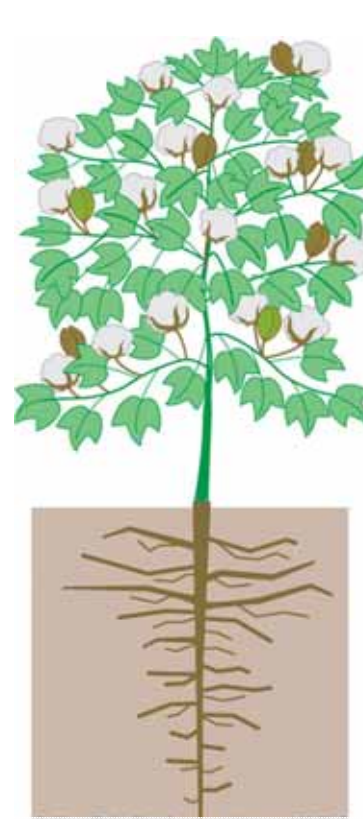


Selecting the right cotton varieties

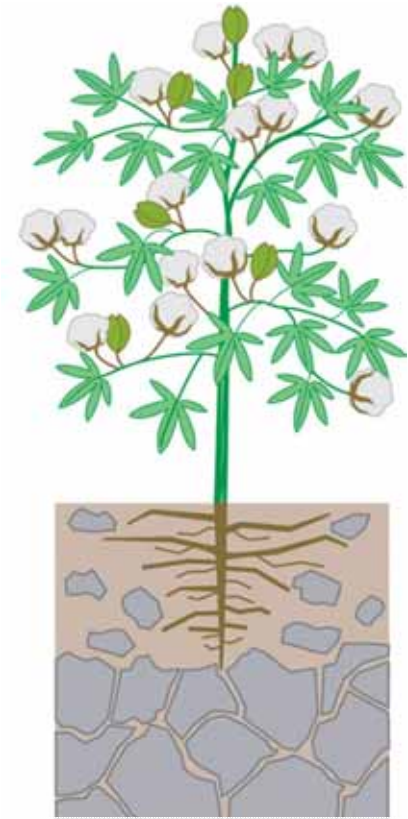
Many cotton varieties are bred for producing high-yields with a high input of fertilizers, pesticides and irrigation.

Selection criteria for organic cotton production:

- › Tolerant to pests, diseases and droughts
- › Satisfying yields with medium manure supply
- › Adapted to site conditions
- › Satisfying buyer's requirements



High yielding variety for high input production system



Medium yielding variety for low input production system



Establishing a cotton garden

1. Proper land preparation



2. Incorporate animal manure or green manure

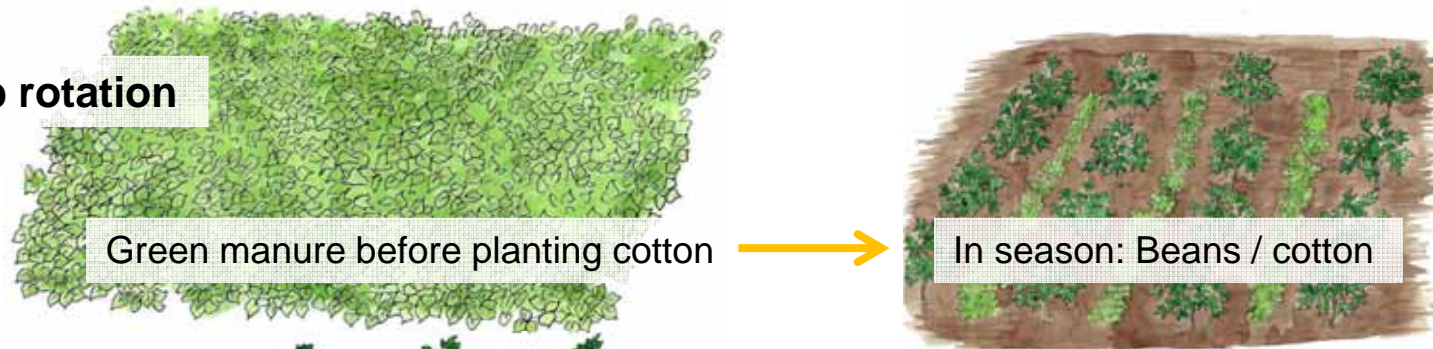


3. Plant at the beginning of the rainy season 4. Thin and leave two plants per hole

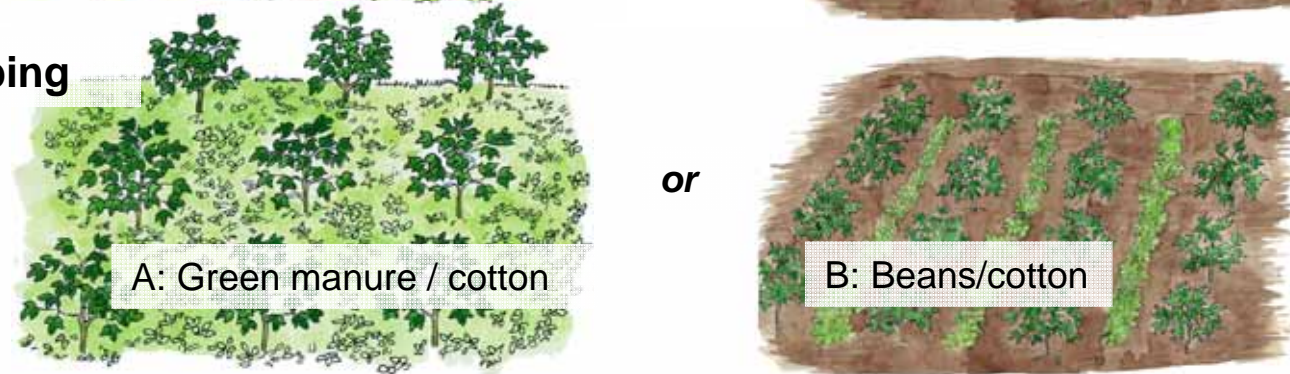


Diversification in cotton production

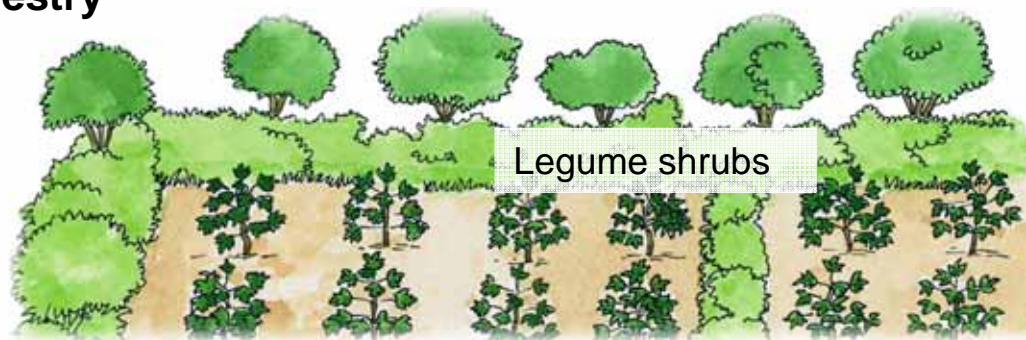
1. Crop rotation



2. Intercropping



3. Agroforestry



Water management

1. At crop preparation and planting



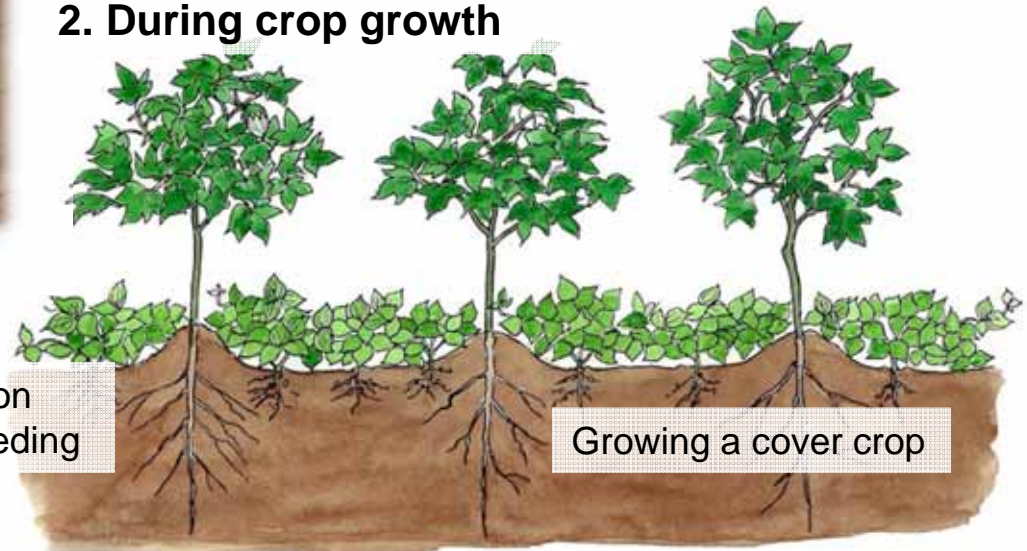
Active rainwater harvesting

Application of compost to increase organic matter content in the soil

Minimum tillage and shallow soil cultivation

Mulching with crop residues and grass

2. During crop growth

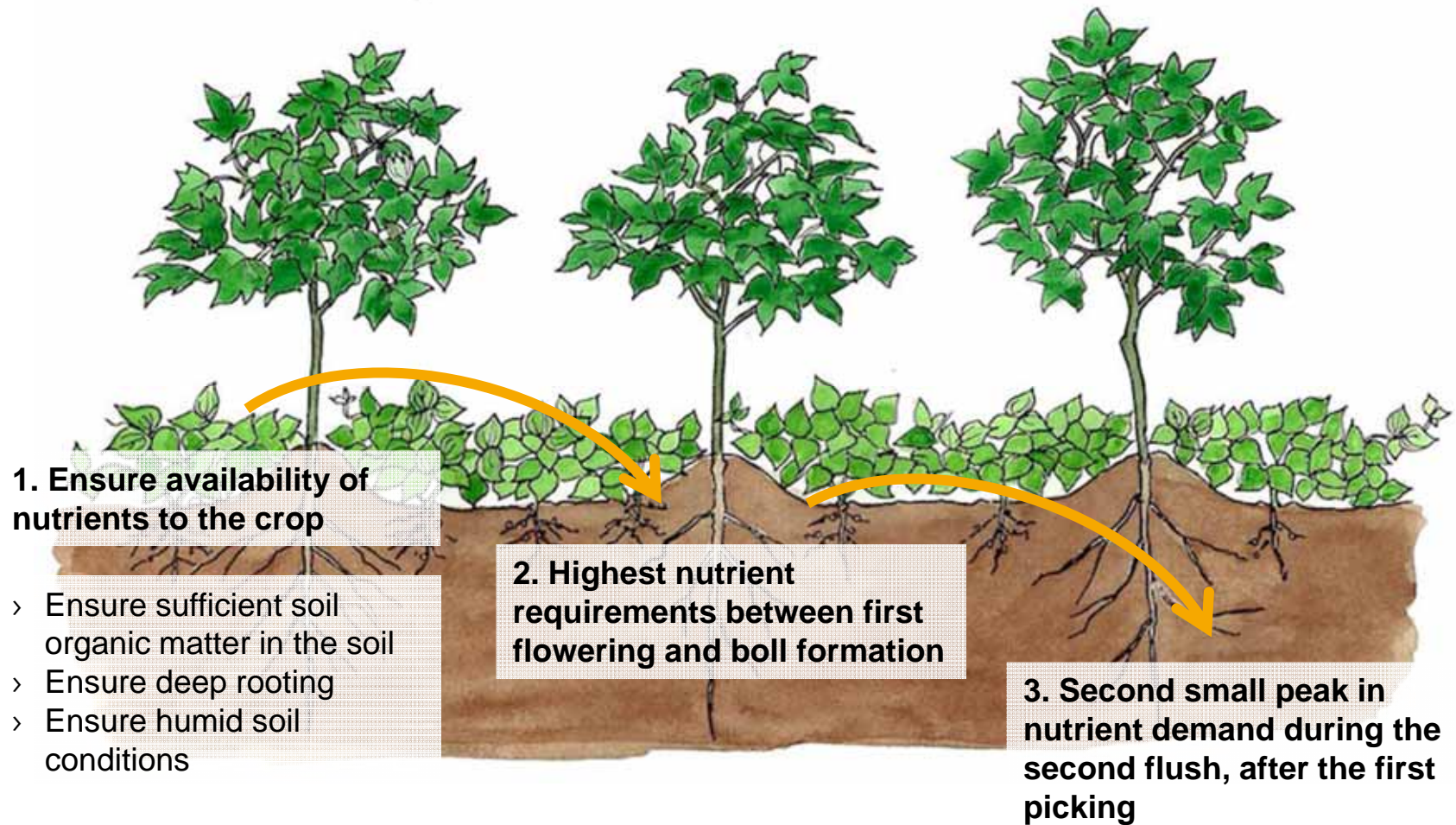


Ridging around the cotton plants during the 1st weeding

Growing a cover crop

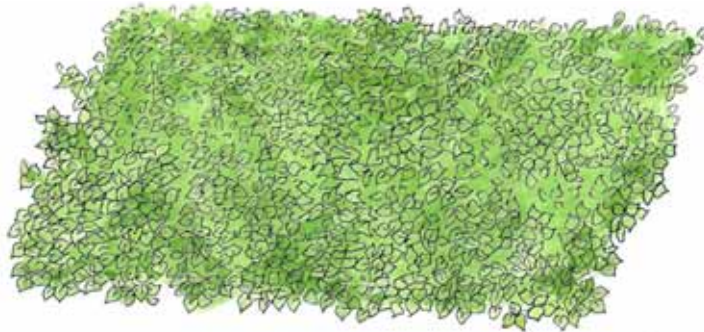


Timing nutrient supply in cotton



Soil fertility improvement

1. Plant green manure to be ploughed into the soil



2. Applying manure before land preparation



3. 1st top-dressing between first flowering and boll formation



4. 2nd top-dressing after 1st picking



Management of important cotton pests (1)

Pest

Preventive measures

Direct control measures

Bollworms
(*Helicoverpa*
and others)



- Trap crops: sunflower, okra, castor
- Hand-pick damaged capsules
- Encourage natural enemies
- Remove cotton stalks
- Cattle grazing after picking is over

- Bt-spray, NPV spray
- Neem, botanical preparations
- Buttermilk spray
- Pheromone traps, light traps
- Trichogramma cards

Aphids, jassids, thrips, whitefly
(*Bemisia*)





- Intercrop of moong, cow pea, etc.
- Avoid high manure application
- Avoid waterlogging and water shortage
- Promote natural enemies by growing flowering plants

- Neem, botanical preparations (chilli, sweet flag, turmeric etc.)
- Soft soap spray
- Cow urine spray
- Potato starch spray
- Yellow sticky traps



Management of important cotton pests (2)

Pest	Preventive measures	Direct control measures
<p>Cotton stainers (<i>Dysdercus</i>)</p> 	<ul style="list-style-type: none"> ▪ Frequent soil cultivation to destroy the eggs (also along field borders) ▪ Encourage birds (turmeric-coloured rice, bird perches, trees) ▪ Avoid stand-over of cotton 	<ul style="list-style-type: none"> ▪ Pyrethrum spray ▪ Botanical sprays (neem, custard apple, garlic bulb, sweet flag, sweet basil, Derris species) ▪ Grazing of chickens
<p>Cutworms (<i>Agrotis</i> and other species)</p> 	<ul style="list-style-type: none"> ▪ Early soil cultivation ▪ Remove weeds in and around fields ▪ Encourage birds, spiders etc. (bird perches, trees, hedges) 	<ul style="list-style-type: none"> ▪ Apply neem cake into the soil ▪ Pyrethrum, Derris or thyme spray ▪ Cutworm baits ▪ Hand picking or Bt-spray at night

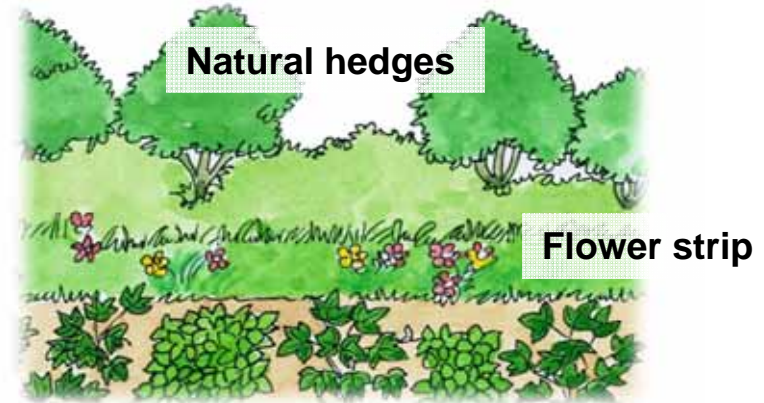


Keeping cotton crops healthy

1. Applying manure or compost



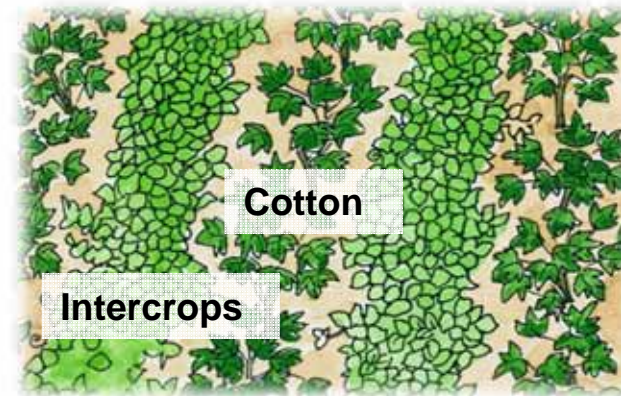
2. Promoting natural enemies



3. Improving water management



4. Crop rotation, intercropping

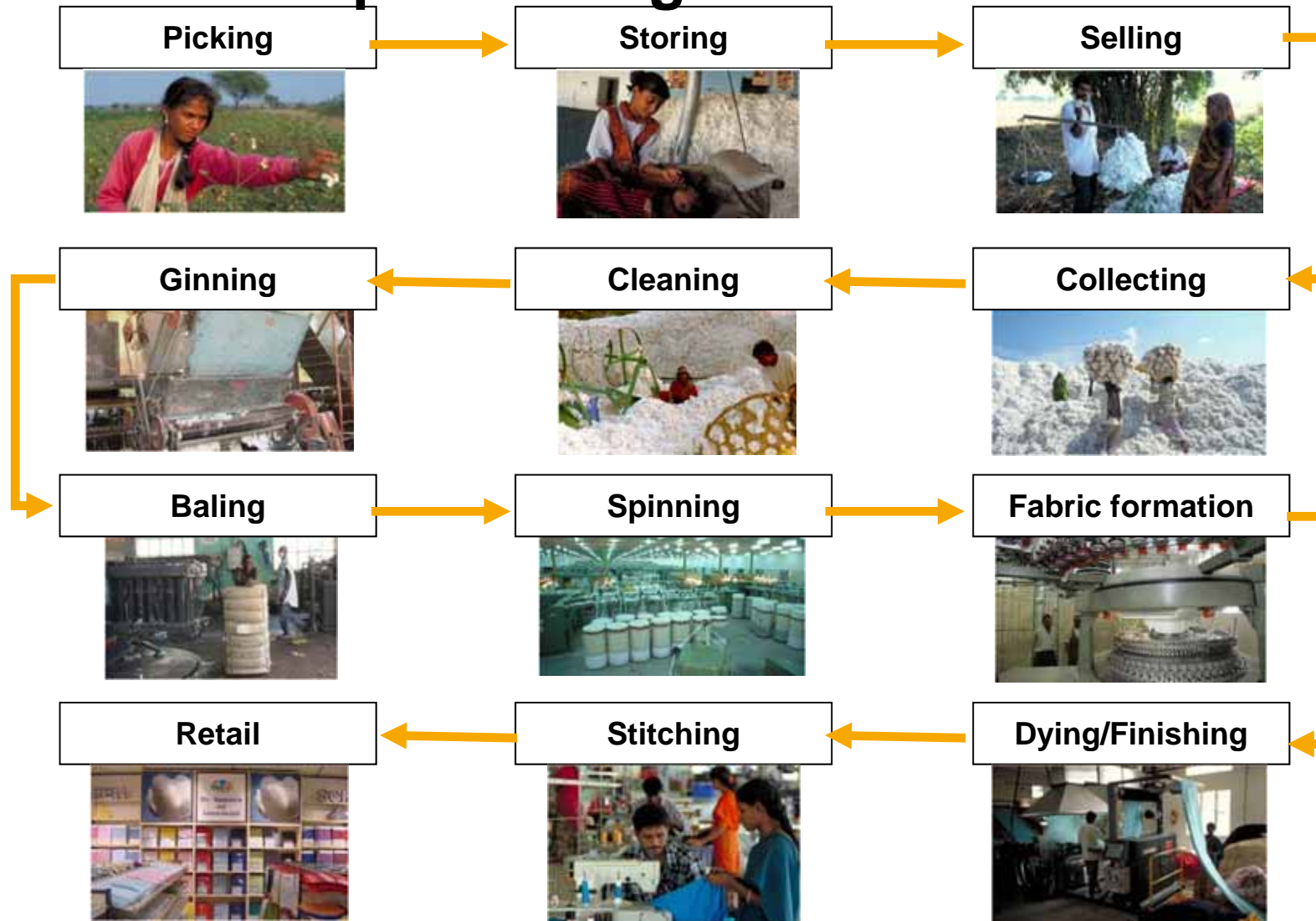


Monitoring of cotton pests with a pegboard

- › Start scouting 8 weeks after germination.
- › Repeat it weekly until the bolls open.
- › Check the plants by crossing the cotton field.
- › Every 5 to 10 steps, count all newly opened flared squares.
- › For each flared square, forward the marker on the pegboard by 1 hole.
- › Continue the procedure until you have inspected 30 plants, or until you have found 15 flared squares.
- › When the stick for the flared squares reaches the red zone, the economic threshold is reached and spraying of a natural pesticide is recommended for the same day.
- › No spraying is recommended, when less than 15 flared squares are found.



The cotton processing chain



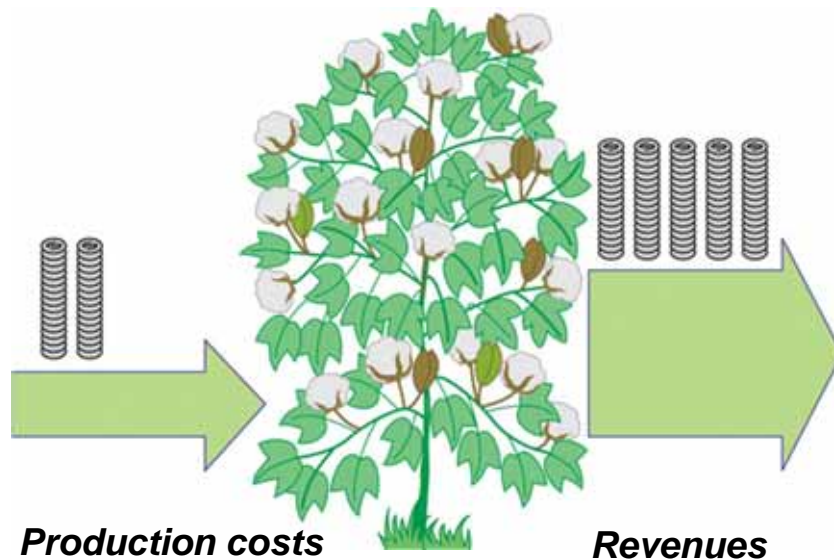
Source: IFOAM Training Manual



How to improve income in cotton production

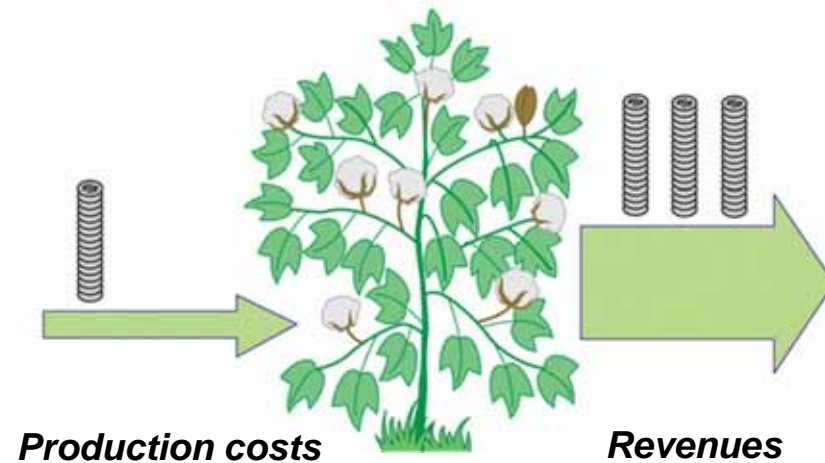
Strategy I: Intensive organic:

- › High yields, but relatively high production costs
- › High loss in case crop fails



Strategy II: Low input, low risk:

- › Smaller yields, but also lower production costs, thus still good income
- › Lower loss in case crop fails



Source: IFOAM Training Manual

