Crop Rotation and Planning

Maîtriser les rotations pluriannuelles et successions rapides pour ne jamais épuiser le sol et couper le cycle des maladies.



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Crop rotation is useful for:



Crop rotation is useful for:

maintaining and increasing soil life and fertility.

increasing production and profitability through rotations that optimize space and compost inputs.

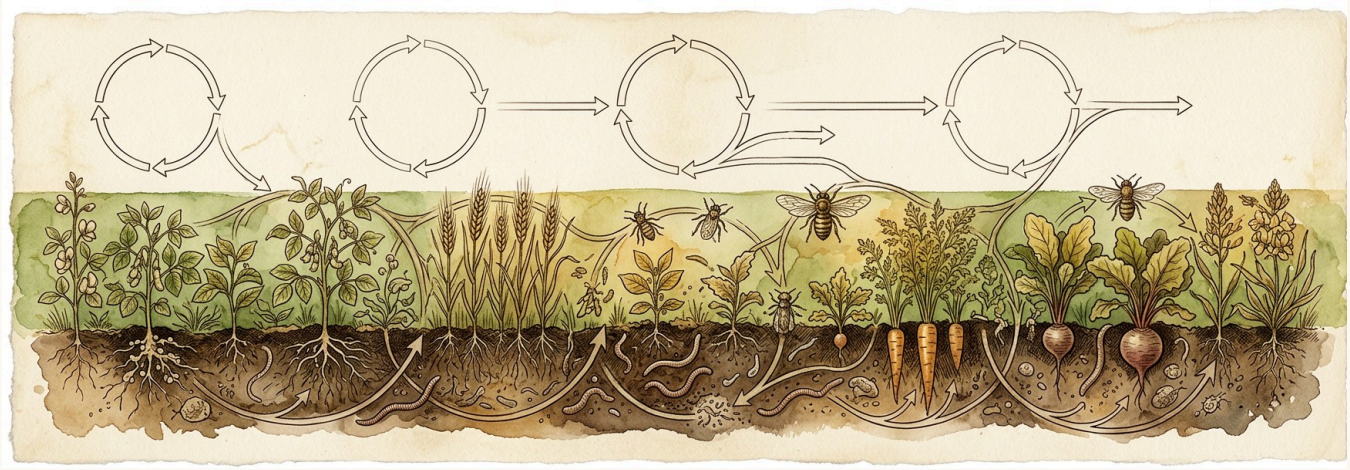


MARKET GARDENING

TRAINING

CROP PLANNING

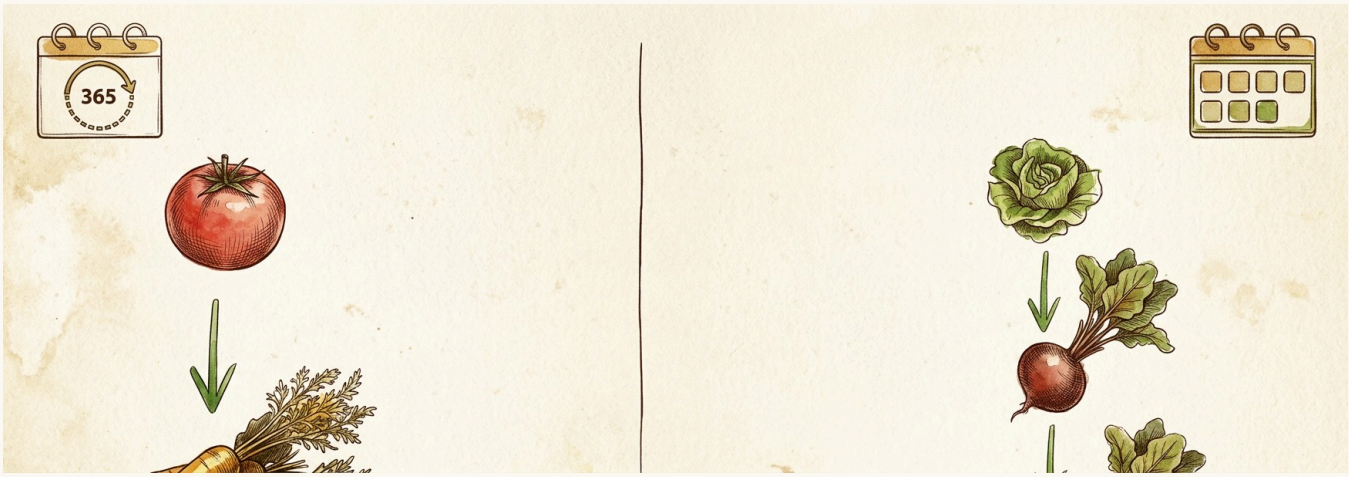
HOW TO ROTATE CROPS?



Understanding the concepts of crop rotation and succession

Understanding the concepts of crop rotation and succession

ROTATION



ROTATION

Several seasons or years

Growing tomatoes

SUCESSION

A short year or cycle

Lettuce

Radish

Growing carrots

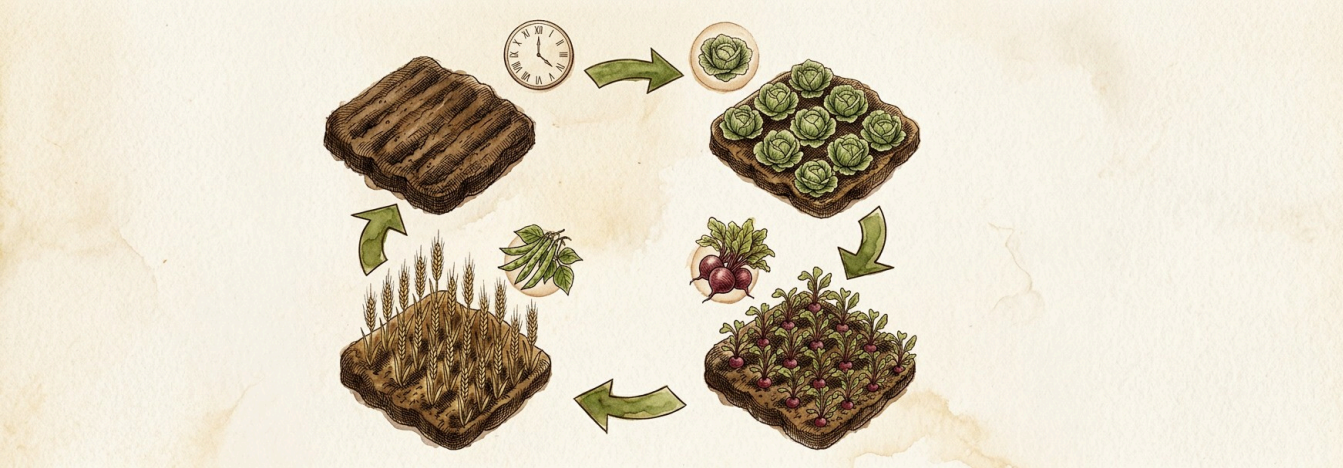
Dwarf beans

Rotation is the planned alternation of crops over several seasons or years, often to prevent soil depletion and limit diseases or pests specific to a plant family.

Succession is the sequence of crops grown in the same space over the course of a year or short cycles.

5

In our specific context, strict crop rotation is not essential because:



In our specific context, strict crop rotation is not essential because:

The soil is continuously improved (compost, permanent cover, organic inputs).

Weeds are limited by breaks and green manure crops.

Crop diversity naturally reduces risks.

What matters most is thoughtful succession and simple alternation between families, root types, and nutritional needs.



Criteria for choosing crops

Criteria for choosing crops



Cool season

Hot season

Rainy season:

moisture-tolerant

crops

Season

The season: adapt crops to the prevailing climate of the season.

The market/business strategy:

Produce what sells well when demand is high.

Diversify to spread the risk.

Alternate between short-cycle crops (lettuce) and long-cycle crops (tomatoes).

The market / commercial strategy:

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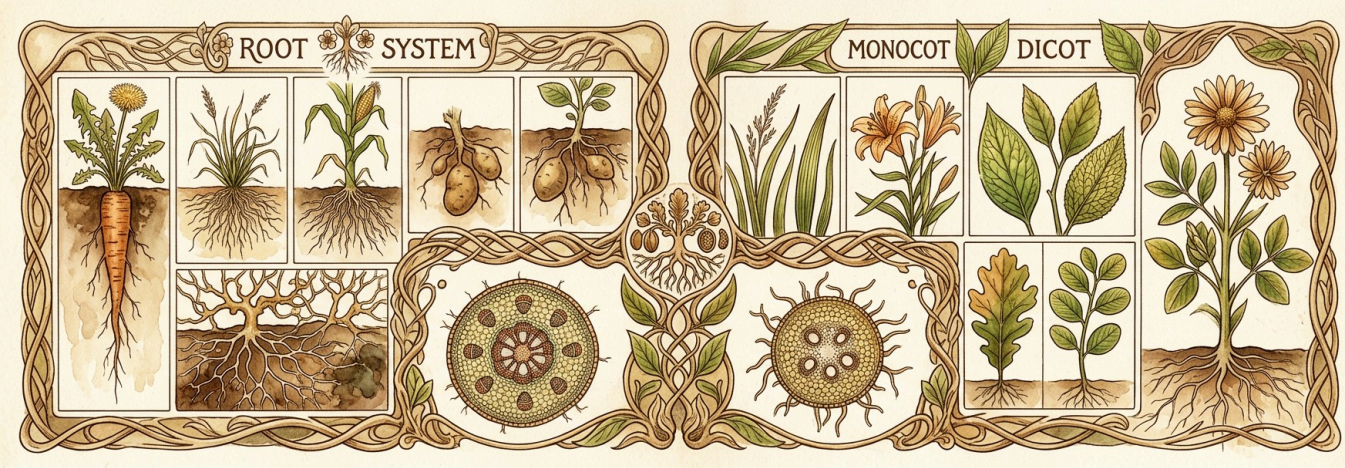
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The question of crop rotation: how to choose which crop to plant based on the characteristics of the previous crop?

You need to know about:

1. The botanical family: You will need to change families.
2. The root type: You will need to alternate between deep/shallow/taproot.
3. Compost requirements: You will need to alternate between heavy and light.



Why is it important to know about botanical families and root types?

Why is it important to know about botanical families and root types?

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1

2

N

Pests/diseases

Ca

P

K

Fe

Mg

Nutritional needs

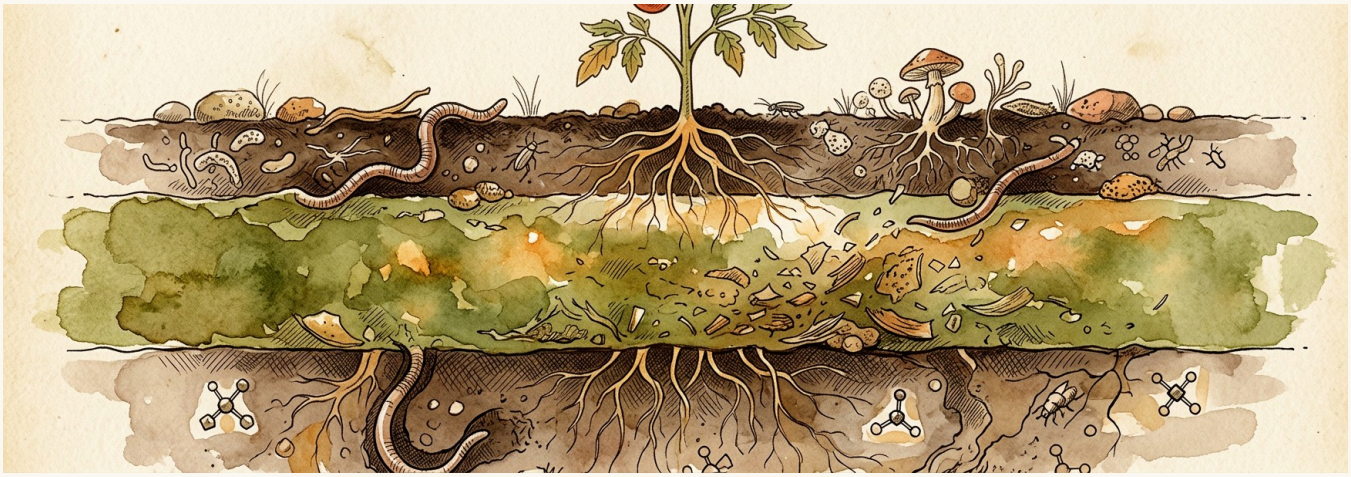
Root systems

1. Plants from the same family often share:

The same pests and diseases (late blight for Solanaceae).

The same nutritional needs.

1. Different root systems exploit different layers of soil (surface vs. depth). Alternating between shallow and deep roots helps balance soil exploitation.



Why is it important to know your compost requirements?

Why is it important to know your compost requirements?



Gourmet crops

Less resource-intensive crops

Alternating between heavy crops and light crops allows the effort to be spread across the soil.

Compost

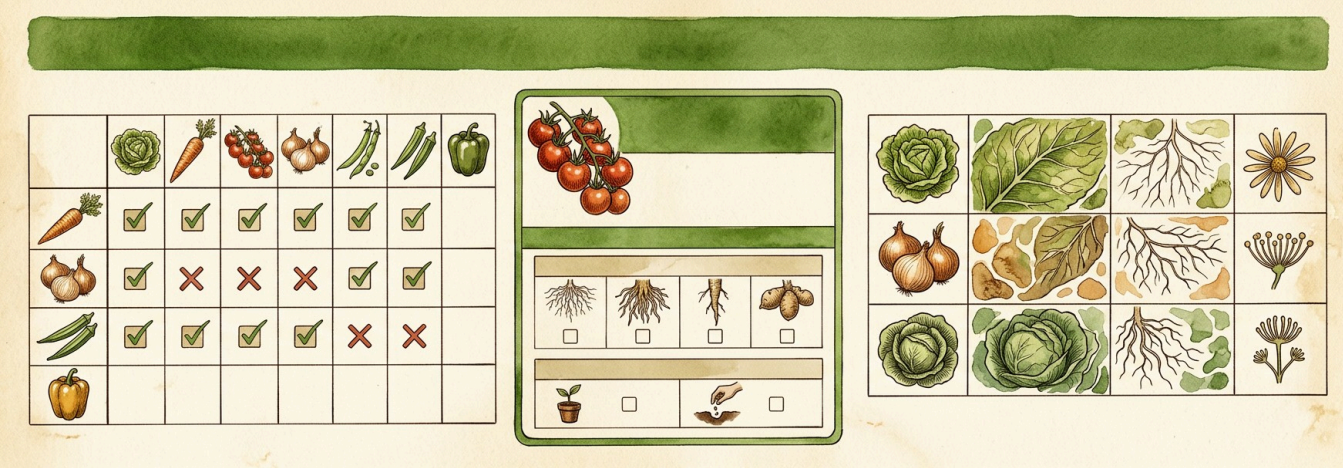
Compost



Resources for effective work-study planning

Resources for effective work-study planning

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To make your crop choices easier and avoid risky crop rotations, you can use three main tools:

1. Crop combination tables

Indicate recommended and discouraged crop rotations.

Allow you to plan quickly based on the crop currently in place.

1. Plant fact sheets

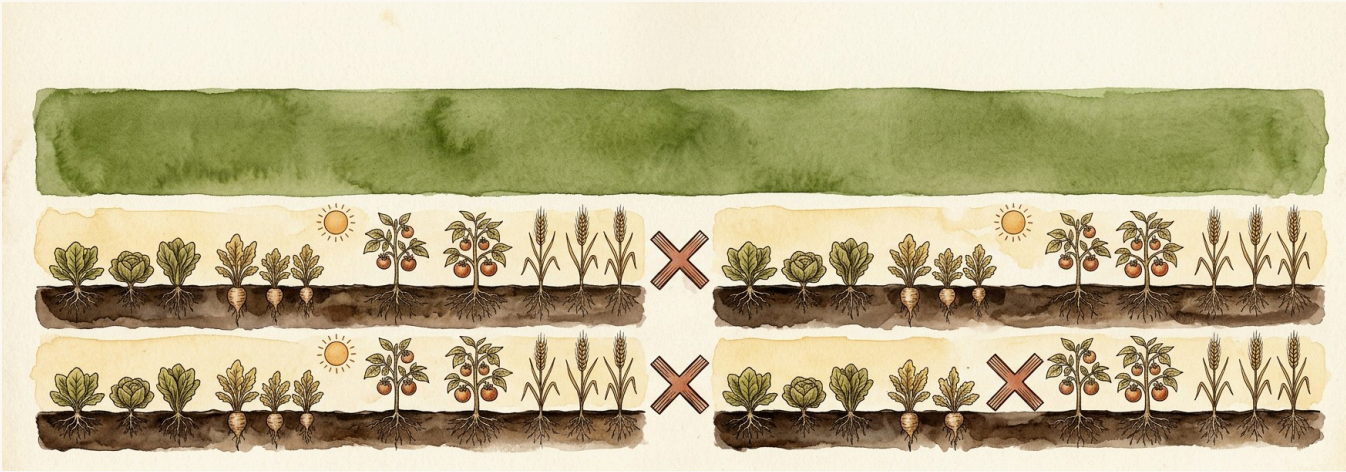
Provide information on compost requirements, cycle length, and disease susceptibility.

Help you decide which crop to plant next based on the season, soil, and market.

1. Plant classification chart

Classifies crops by botanical family and root type.

Helps you avoid planting crops too close together or with root systems that compete for the same soil layers.



Example of crop rotation

ALTERNATIONS TO AVOID



DISEASE AND PESTS

POOR SOIL

Virus

Bacteria

N

P

K

Fe

Ca

Mg

Some crop rotations deplete the soil or promote the development of diseases and pests. Here are the main mistakes to avoid.

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Examples to avoid

classic disease: cabbage hernias

classic pest onion fly

2

both Solanaceae

both Cucurbitaceae

1. Monoculture

Growing the same plant several times in a row in the same space. This depletes the soil in a targeted manner and promotes crop-specific diseases.

1. Alternating between plants of the same botanical family

Even if the plants are different, they often share the same pests and diseases.



Examples to avoid

3

tracer roots

shallow roots

4

1. Alternating between plants with the same type of root

The same type of root requires the same depth of soil and often has the same weaknesses when it comes to pests.

1. Alternating between two very demanding crops

Growing two nutrient-hungry crops in succession, without a break or green manure, severely depletes the soil. Both require a lot of compost, water, and care.



Example of crop rotation

RECOMMENDED CROP ROTATIONS



Good succession promotes soil health, limits disease, and optimizes the use of resources: water, compost, and labor. Here

are the principles to follow, with concrete examples.

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1

Solanaceae

Recommended examples

2

Fabaceae

fine, shallow roots

Solanaceae

Asteraceae

Liliaceae

Apiaceae

fine roots

1. Change botanical family: alternating families helps break cycles of specific diseases and pests.
2. Change root type: this allows different depths of soil to be used and improves its structure.

taproot

tuber

3



3

Gourmet

4

Long

5

Nitrogen fixer

Moderate

Short

Gourmet

Undemanding,

nitrogen fixer

Long

Green manure or

harvested manure

1. Alternate between demanding and undemanding crops: this prevents soil depletion and spreads out compost and water requirements.

1. Insert a fast-growing crop between two long-growing crops: this optimizes time and space while giving the soil a “relative rest.”

1. Introduce a nitrogen-fixing legume: Fabaceae enrich the soil with nitrogen, which is useful for subsequent crops.



Example of crop rotation

SPECIAL CASES AND USEFUL EXCEPTIONS

1



1

2

Possible over two consecutive cycles, especially when

interspersed with compost application or a short break.

good ground cover,

low demand

flow demand,

good ground cover

Some crops partially escape the general rules of crop rotation. Here are two types of cases to be aware of:

1. Low-impact crops (tolerance to repetition): certain plants with very short cycles, low requirements, and low susceptibility

to disease can be grown twice in a row without significant risk, provided the soil remains fertile and healthy.

1. Buffer or transition crops: certain plants are considered neutral because they:

have few requirements,

are not very susceptible to disease,

do not belong to problematic families.

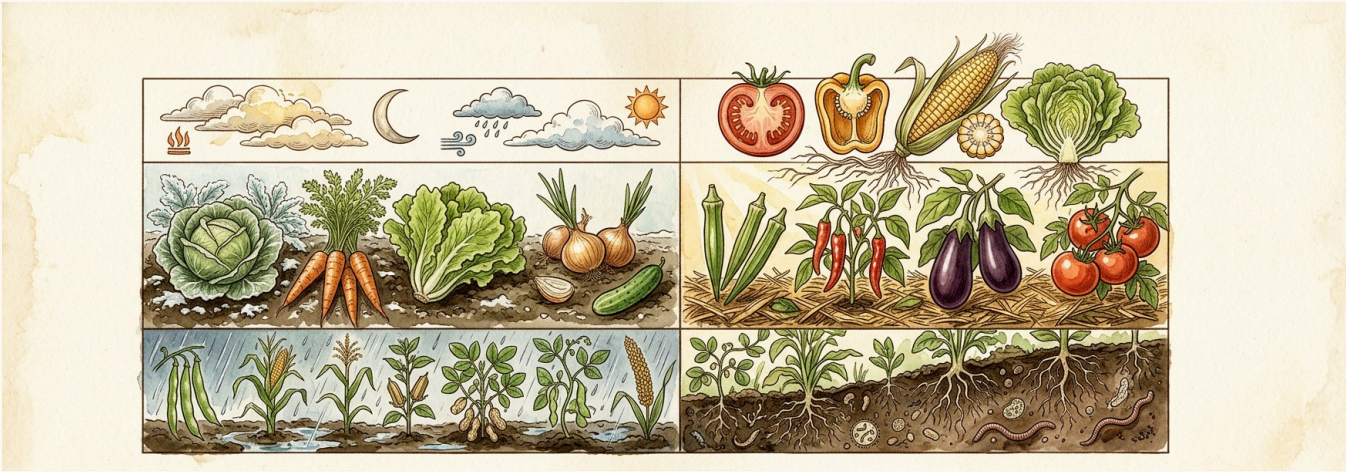
They can be used as a transition crop between two more demanding or risky crops.



Another strategy

SIMPLE SEASONAL STRATEGY

Another planning strategy is to plant one main crop per season. You choose a crop that is suited to the cli...



Another planning strategy is to plant one main crop per season. You choose a crop that is suited to the climate, then change to a

different crop the following season.

Advantages:

Adapted to local climatic conditions

Fewer diseases (thanks to the change of seasons)

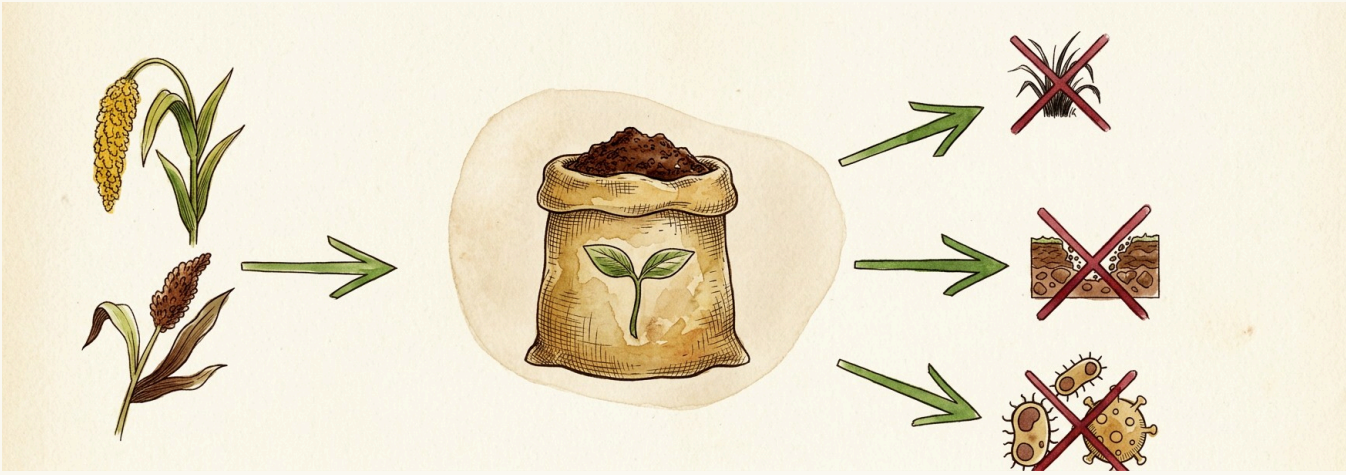
Simplified planning

Even if some crop rotations do not follow the classic rules of alternation, the change of season is often enough to break disease cycles. Consider incorporating green manure or straw mulch every 2–3 cycles.



Green manure and soil rest: useful breaks

Green manure and soil rest: useful breaks



Green manure

Green manure comes from plants harvested for mulching, such as millet or sorghum. Along with rests periods, they are essential for keeping soil alive and fertile. Green manure is useful for the following reasons:

It protects against erosion, structures the soil, and provides organic matter.

They break disease cycles.

They smother unwanted weeds and inhibit weed seed germination, especially when the compost added is not fully mature.



Rest period

Regarding active rest:

Mulching without cultivation for 1 to 2 months.

Allows the soil to regenerate and breaks disease cycles.

Adds organic matter with mulching.

Plastic mulching (with a tarpaulin, for example) can be used to accelerate composting, maintain soil moisture, and prevent unwanted plants.

A black tarpaulin warms the soil, while a white tarpaulin maintains the temperature.

Green manure



Green manure

When should they be incorporated?

Between two demanding crops,

During difficult seasons (heavy rain or high temperatures),

After 2 or 3 successive crops.

Rest period

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2

3

Good crop rotation is based on three simple principles:

1. Change botanical families
2. Vary root types
3. Balance soil requirements

Adapt your strategy to the season, crop duration, and soil condition. Where possible, consider incorporating breaks with green manure or straw mulch to naturally regenerate the soil.