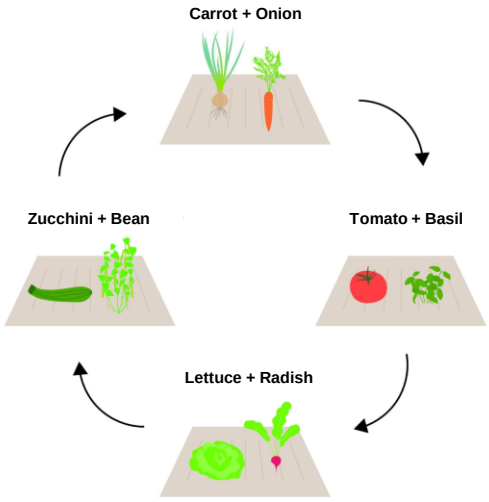
Vegetable production

Vegetable rotation

Crop rotation involves alternating vegetable crops over time.

How do you do it?

- Alternate **family** and/or **type** of vegetable (end product): leaf/stem, flower/fruit, root, bulb
- Organize crop rotation over several years
- Introduce **breaks** between crops (see table)
- Consider **crop needs**: greedy, medium-greedy, low-greedy crops



Objectives

- **Limit** the growth and spread of **pests, diseases and weeds**: by alternating crops, we prevent pests from spreading year to year.
- **Maintain soil fertility**: each type or family of vegetable consumes different nutrients, thus avoiding specific depletion.
- Incorporate **green manures** to regenerate the soil.
- Integrate **bio fumigant** crops for pest control.

Family	Species	Type of vegetable	Break (year)	Nutrient needs
Apiaceae	Carrot, celery, parsley	Leaf, root	1/2	
Asteraceae	Lettuce, chicory	Leaf	1/2	
Brassicaceae	Cabbage, radish, turnip	Leaf, flower	1/2	NK
Cucurbits	Squash, watermelon, melon, cucumber, zucchini	Fruit, flower	2/3	NK
Alliaceae	Garlic, onion, leek	Bulb, leaf	2/3	
Malvaceae	Bissap, okra, coretes	Leaf, fruit	1/2	
Solanaceae	Tomato	Fruit	2/3	NK
	Potato	Tuber	2/3	NK
	Eggplant, bell pepper, nightshade	Fruit	1/2	NK

Vegetable production

Vegetable Associations

Crop associations involves growing several crops together on the same plot or bed. This cultivation practice offers a number of advantages.

Advantages against pests and pathogens

- **Discontinuity** of host resources
- Increases **diversity of beneficials**
- **Repelling effect** against specific pests (onion/carrot) or general pests (garlic/ginger/tagetes/etc.)

Advantages for the farm

- Better **soil coverage**
- **Optimization of space and resources**
- Staggered harvests
- **Higher overall yields** when additioning associated crops yield
- **Diversification** of income sources

Intercropping

Lettuces cover the soil quickly, prevent the development of weeds and are harvested first. Onions protect carrots with repellent compounds, and while they use different soil strata, these two crops don't compete for resources.

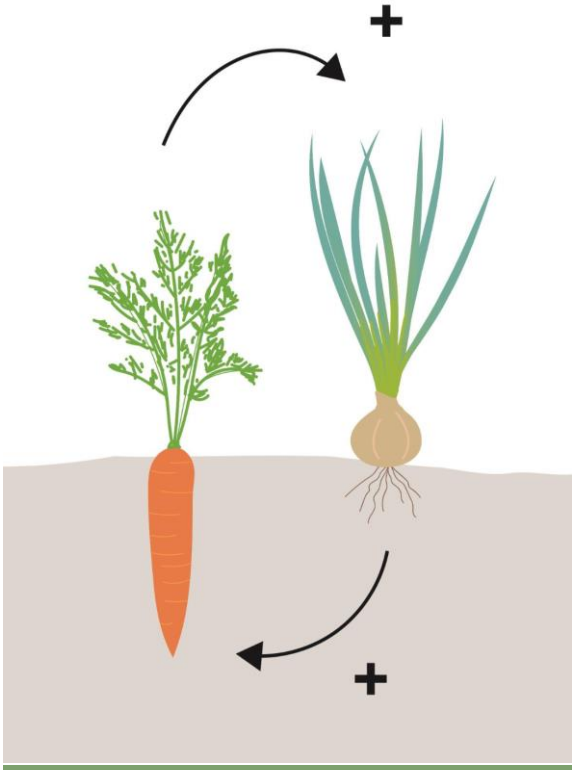
Vegetable production

Vegetable Associations

Vegetable combinations involve growing several types of vegetables together.

The advantages:

- **Repellent effect:** some plants secrete odorous molecules that repel pests.
- **Optimization** of resources and space, by combining different types of vegetables (root, tuber, leaf, fruit, stem).
- **Diversification** of income sources



Carrot/onion association

Repelling plants:

- Onions, garlic and other alliums, to grow with beets, carrots, celery
- Ginger, turmeric
- Mint
- Lemongrass, very powerful scent
- Tagetes and nasturtium, against whitefly, noctuid moth, leafhoppers
- Aromatic herbs

General rules:

- Alliaceae (garlic, onion) protect Apiaceae (carrot, celery)
- Alliaceae are not suitable for legumes
- Tagetes and nasturtiums protect Solanaceae
- Aromatic herbs protect almost all vegetables
- Associating plants from the same family is rarely favorable

Vegetable Associations

How to make them?

The table below gives a basic overview of the associations that have shown a positive effect, those that have shown no particular interest and those that have shown a rather negative effect.

Vegetable Association Table

c	Basil	Beetroot	Cabbage	Carrot	Celery	Courgette	Cucumber	Eggplant	Garlic	Green Beans	Leek	Lettuce	Marigold	Mashua	Melon	Okra	Onion	Parsley	Peas	Pepper	Potatoes	Radish	Squash	Tomato
Basil																								
Beetroot																								
Cabbage																								
Carrot																								
Celery																								
Courgette																								
Cucumber																								
Eggplant																								
Garlic																								
Green Beans																								
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Potatoes																								
Radish																								
Squash																								
Tomato																								

Positive association

Negative association

Neutral association

Neutral association of the same family