

Cover crops (living mulches) in the tree row of organic orchards: why and how?

Problem

Weed management of the tree row is a major issue in organic fruit production. Tillage requires special machinery, it is costly, time consuming and can be detrimental to soil fertility.

Solution

The cultivation of understorey cover crops (living mulches) is a promising alternative of row management for weed control as it does not require the use of artificial (plastic) mulch.

Benefits

After establishing living mulch, tree row maintenance is cheaper and, depending on the species, can provide different ecosystem services (e.g., nitrogen fixation), functional biodiversity (e.g., nectar source for pollinators, habitat for beneficials), soil conservation, etc... The cultivation of secondary cash crops as living mulch can be a source of additional income.

Practical recommendation

- Prepare the establishment of the living mulch with summer tillage, then prepare the seedbed in early autumn.
- Prefer short, low-lying perennial species with high capacity of soil coverage in irrigated orchards.
- For perennial species, sow or plant living mulches in autumn to favour their establishment. During the first season, one or two mowings and possibly manual weed control may be necessary. After establishment, if necessary, mow once a year to maintain a moderate plant height.
- Among the perennial living mulching species adapted to orchards in different pedo-climatic conditions: yar-row (*Achillea millefolium*, Picture 1), wild strawberries (*Fragaria vesca*), peppermint (*Mentha piperita*), lady's mantle (*Alchemilla vulgaris*, Picture 2), crawling thymes (*Thymus spp.*), mouse-ear hawkweed (*Pilosella officinarum*), caucasian crosswort (*Phuopsis stylosa*, Picture 3), creeping cinquefoil (*Potentilla reptans*) and white bedstraw (*Galium album*).
- For rainfed orchards or those with a high risk of vole damage, favour the sandwich system¹ (Tschabold, 2009) or the cultivation of annual species (vegetables, annual clover, etc.).
- When selecting the species, favour local ecotypes better adapted to pedo-climatic conditions.

Applicability box

Theme

Crop production, Soil, Environment and society

Keywords

Cover plants, Intercropping, Temperate fruits, Soil fertility, Soil conservation, Ecosystem services

Context

Continental Europe

Application time

All year long

Required time

Establishing the cover crop is time consuming. Afterwards, the maintenance is less time consuming than tillage.

Period of impact

All year long

Equipment

Seeds, seed drill, intercept mower

Best in

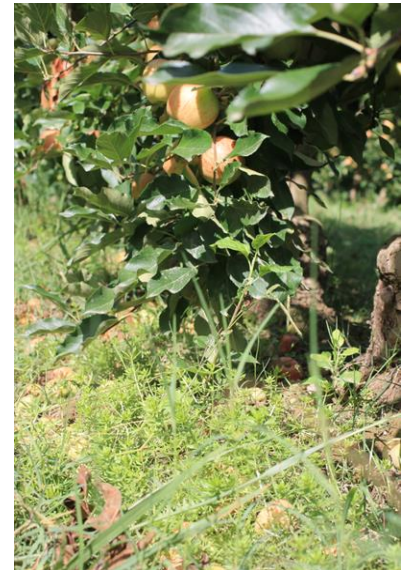
Mature and irrigated orchards with a fertile soil



Picture 1: Yarrow as cover crop under peach trees (France, Drôme, Etoile-sur-Rhône). Photo: Maxime Jacquot, GRAB.



Picture 2: *Alchemilla* as living mulch under apple trees (Poland, Łódź, Skierniewice). Photo: Eligio Malusa, INHORT.



Picture 3: *Phuopsis stylosa* cultivated on apple tree rows (France, Bouche-du-Rhône, Saint-Andiol). Photo: Maxime Jacquot, GRAB.

Further information

Video

- [Mulching management](#) (IT)
- Outil sandwich, un outil auto-construit pour travailler l'enherbement sur la ligne (FR)

Further reading

1. Sandwich system (Tschabold, 2009) (FR)
- Cover crops in the tree row (FR)
 - Dynamic sod mulching and use of recycled amendments to increase biodiversity, resilience and sustainability of intensive organic fruit orchards and vineyards (EN)

Weblinks

- Plantes couvres-sols comme contribution au contrôle des adventives et à la promotion de la biodiversité (FR)
- The use of strawberries as living mulch in organic orchards and vineyards (EN)
- Check the [Organic Farm Knowledge](#) platform for more practical recommendations

About this practice abstract

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