

Farming with Alternative Pollinators (FAP) in mountainous regions



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Farmers in mountainous regions produce many different fruits, vegetables and cereals, however there is a trend to large monocultures of olives, apple and onion. Apple monocultures for instance provide nectar and pollen for about two weeks, afterwards pollinators are scarce of food like in olive orchards or large cereal monocultures.



By now, mountainous regions have also natural sites and high diversity of pollinators, but they are under pressure as population grows. It is important to enhance diversity of plants in fields.

Enhance the diversity of crops and attract more pollinators to your fields!



Protect these effective wild pollinators



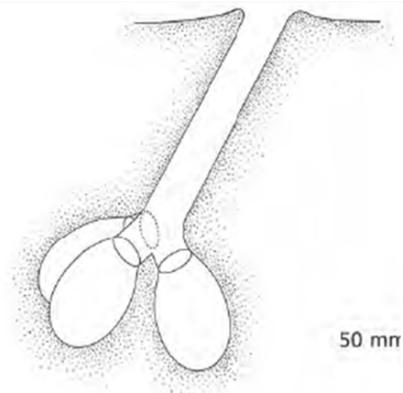
Bumblebees pollinate effectively faba bean, vegetables and fruits. They remain able to forage even in the worst cold days. They are social bees. The queens remain sleeping in ground holes during the winter. In spring, they build new colonies in abandoned burrows of mice. Protect the queens and their nesting areas to benefit from good pollination service.



Protect these effective wild pollinators



Flower-bees pollinate effectively faba bean and other legumes. They are solitary ground nesting bees that establish their deep burrow in vertical embankments with mixed clay and sand. Create areas of bare banks and protect these bees from tillage to benefit from good pollination service.



Protect these effective wild pollinators



Long-horned bees are effective pollinators of faba bean and arugula. They are long tongued, ground nesting solitary bees. They burrow vertical cells at the end of a rather long lateral gallery. Create patches of bare soil and protect the offspring from tillage, harmful farming practices and chemical amendments to benefit from good pollination service.



Protect these effective wild pollinators



Furrow bees pollinate effectively cucurbits like melon, zucchini and pumpkin. They are solitary ground nesting bees that establish their nests in soils with mixed clay and sand. Create areas of bare grounds and protect these bees from tillage to benefit from good pollination service.



Protect these effective wild pollinators



Photo: Yvan Barbier

Mason bees (*Osmia*) are very efficient pollinators in orchards. They are able to forage in bad weather and to transport large amounts of pollen. They are solitary bees that most often make their nests in holes of wood or dried vegetation. To provide them with holes and tubes is the best way to benefit from their good pollination service.



Protect and promote effective pollinators

The best way to protect these effective pollinators and enhance their number is to provide them nesting material and safe nesting sites. A lot of species nest in burrows that they dig in the sand or the clay of embankment. It is important to avoid disturbing these banks. Other species are nesting in holes in wood. It is then possible to provide them with such holes in logs, canes, rods or reed.

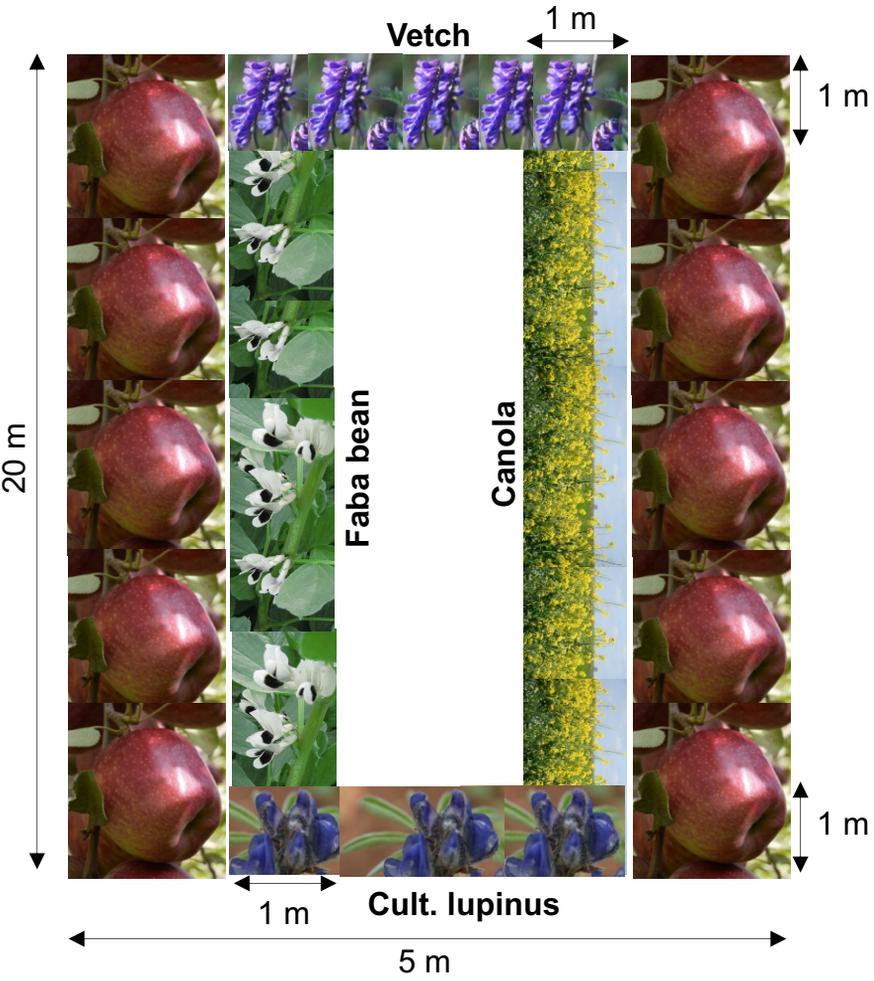




To gain pollinators working in your fields support them with hollow stems for instance mason bees lay eggs inside and add some pollen as first nutrition. You can use even former canola stems.



Marketable habitat enhancement plants to enhance your apple orchard to gain higher income from the entire field

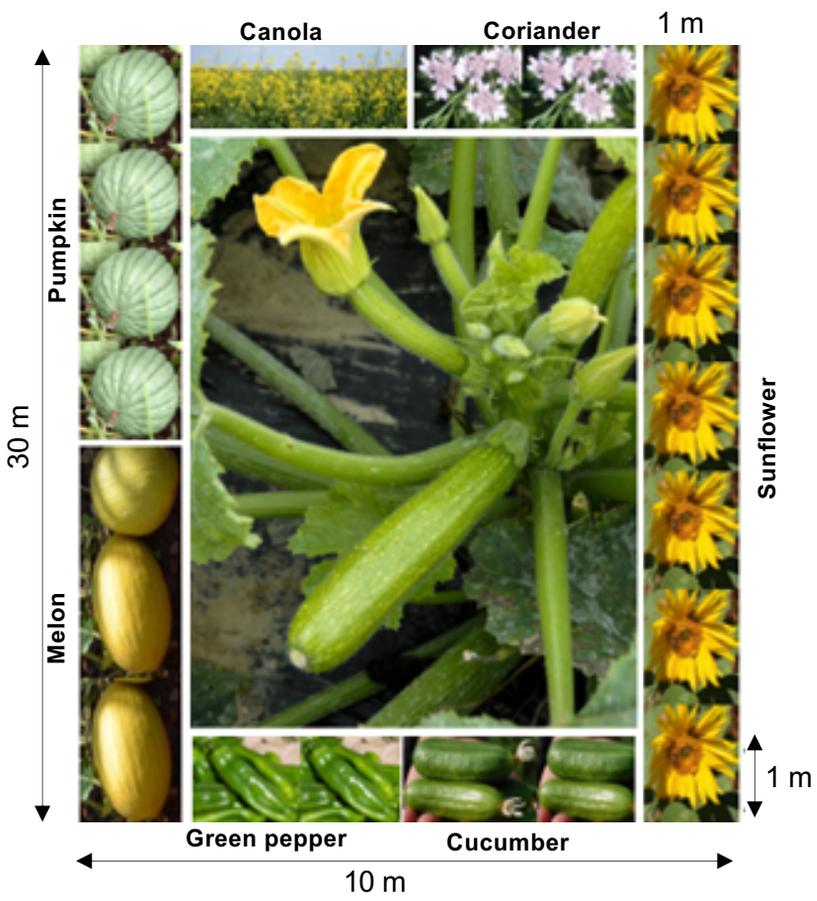


Main crop: Apple
Seeding times

Early January

Faba bean, Vetch, Canola, Cultivated Lupinus

Marketable habitat enhancement plants to enhance your zucchini production and have higher income from the entire field



Main crop: Zucchini

Best responding cultivar: Fadma

Seeding times

Early April:

Canola, Coriander, Sunflower, Cucumber,, Melon, Pumpkin

Planting time

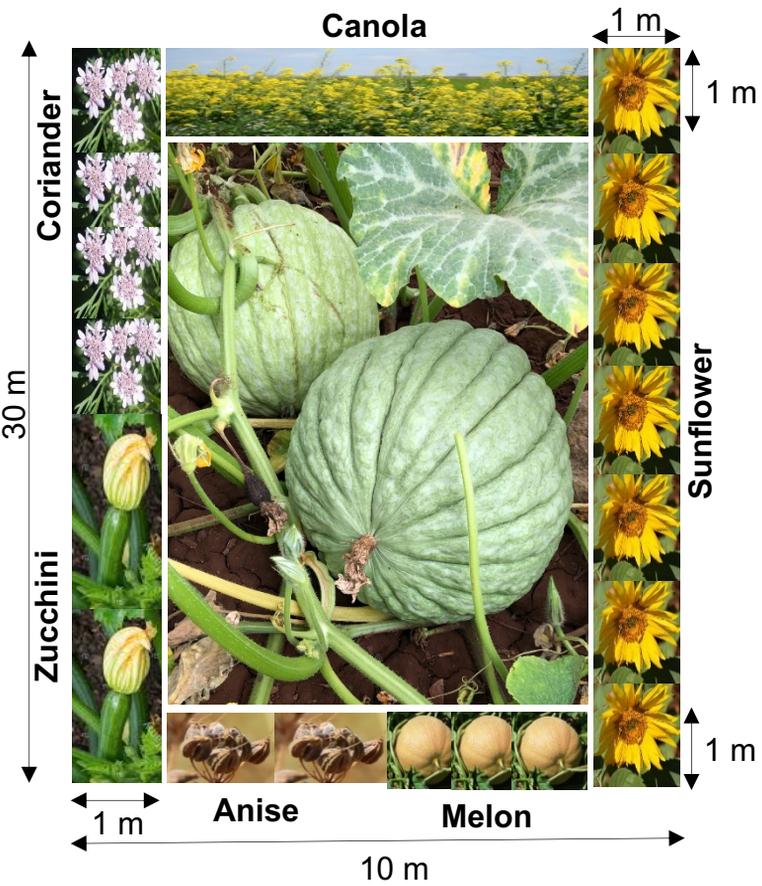
Early April:

Green pepper

Mid May:

Zucchini

Marketable habitat enhancement plants to enhance your pumpkin production and have higher income from the entire field



Main crop: Pumpkin

Best responding cultivar: Dokalia (local variety)

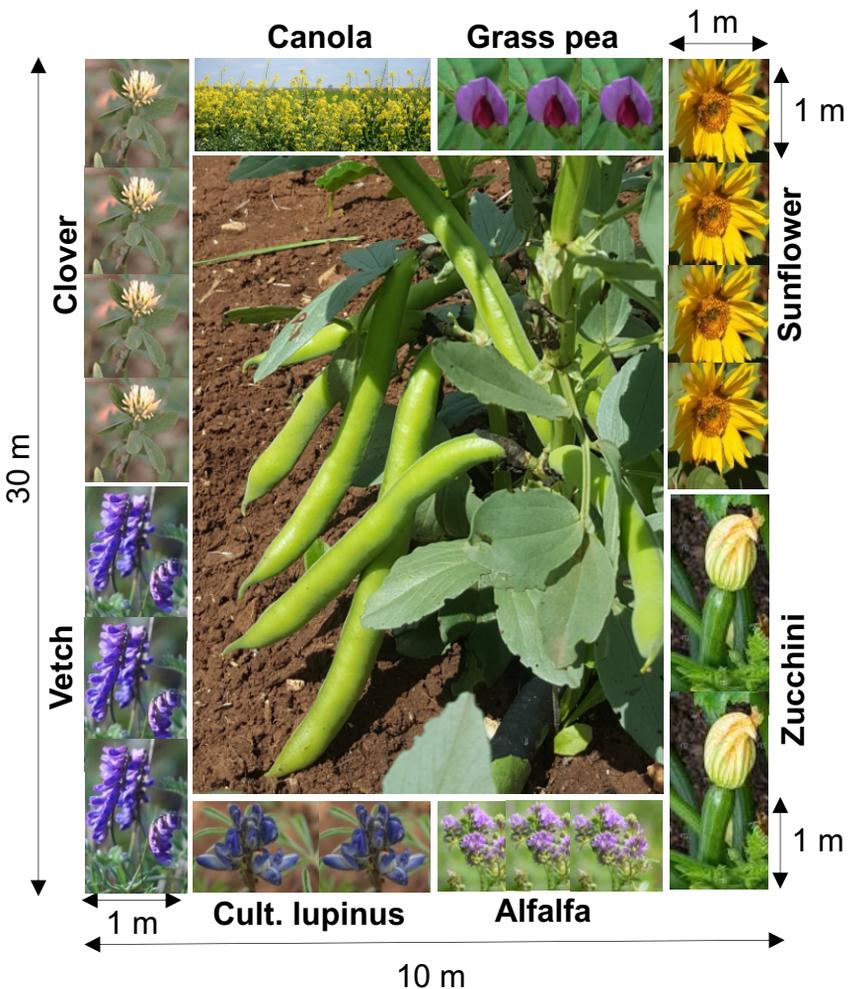
Late April:

Coriander, Zucchini, Anise, Melon, Sunflower, Canola

Early June:

Pumpkin

Marketable habitat enhancement plants to enhance your faba bean production and have higher income from the entire field



Main crop: Faba bean

Best responding cultivar: Reina Blanca

Late December:

Faba bean, Clover, Vetch, Canola, Grass pea, Cultivated Lupinus, Alfalfa

Early February:

Sunflower, Zucchini

In our trials with smallholder farmers in the mountainous region, FAP farmers planting field crops had on average 130% higher net income per surface than control farmers planting only the main crop in the entire field. FAP-farmers, including apple-farmers had a higher number of fruits and often very good quality. Pest abundance was substantially reduced.



Use FAP planting designs and protect pollinators



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