

# Vineyards in Hungary

## Long Term Experimental Plot 9

*Experimenting crop diversification and low input farming*



Experimentation plot of 3 ha with vineyards in Pécs - Szentmiklós (Hungary) with slopes. It is a rainfed permanent cropping system used for food production

### 3 MANAGERMENTS COMPARED WITHIN THIS CASE STUDY

#### CONVENTIONAL TILLAGE

Ploughing, disking, deep loosening

#### MECHANICAL TILLAGE

Dsking, deep loosening, mowing alleys with reduced tillage and mulching with cut-up vine shoots

#### NON TILLAGE

No-tillage with spontaneous cover crops: mowing alleys alternatingly was applied, spontaneously developed cover crops retained with loosening topsoil at intervals

#### WHY IMPLEMENT THESE MANAGEMENT PRACTICES?

Keeping spontaneous cover crops by no-tillage practices improves the soil quality, water retention, and air exchange. This field-level diversification can ultimately contribute to the design of a diverse landscape pattern with higher biodiversity



DIVERFARMING

## MAIN BENEFITS

### AGRONOMICS

1. Cover crops achieve **optimal C/N ratios** to help manage soil nitrogen
2. Cover crops with no-tillage increased exchangeable nutrients in soil
3. Cover crops with no-tillage provided well-balanced soil moisture conditions

### ENVIRONMENTAL

1. Cover crops with no-tillage **reduced transpiration of the bare soil surface**
2. Cover crops with no-tillage reduced soil erosion
3. The developing of the roots in the alleys with cover crops increased soil aggregate stability

## MAIN DRAWBACKS

### AGRONOMICS

1. Approximately 20-30% of the cover crop is **damaged or weakened** because of the main crop field works (harvest, treading, cultivations)
2. Cu-based spraying of main crop (vine) can cause **Cu-accumulation** in sidecrop

### ENVIRONMENTAL

1. **No environmental drawbacks,**

## FINAL CONCLUSION

Is it beneficial to adopt these sustainable practices?

No-tillage with spontaneous development of cover crops is beneficial for providing soil cover and protection against desiccation and erosion. It also promotes soil aggregation through increasing carbon content and preventing the leaching of nutrients.



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