



NYÍREGYHÁZI  
EGYETEM

MŰSZAKI ÉS  
AGRÁRTUDOMÁNYI INTÉZET

# **EXPERIENCES OF CONVERSION TO ORGANIC FARMING ON SOILS WITH LIMITED FERTILITY AT THE TRAINING FARM OF THE UNIVERSITY OF NYÍREGYHÁZA (HUNGARY)**

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# TRAINING FARM OF THE UNIVERSITY OF NYÍREGYHÁZA – in FERENCTANYA near NYÍRTELEK

## PLANT CULTIVATION

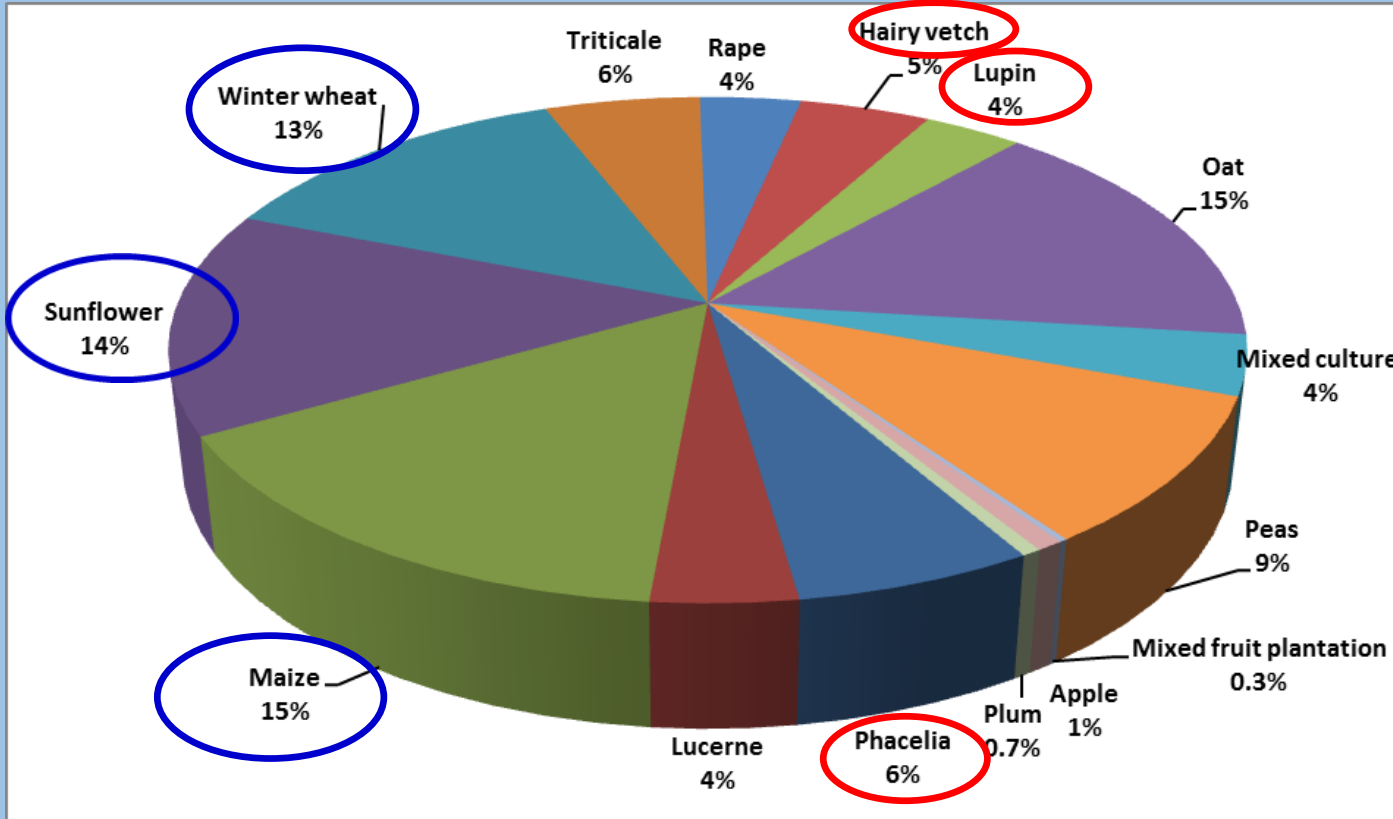
Site of the weekly, summer and continuous practices for our agricultural engineer students.

Our students are involved in every work of arable crop production (subsoil loosening; plowing; seedbed preparation , nutrient sreplenishment; sowing; plant care; harvesting; mowing; etc.).

**Field crop production: 248 ha**  
- conventional: 114 ha  
- organic: **134 ha (54%)**



# Production structure 2018



Lupin

Research related to organic farming  
**GREEN MANURING - SUNFLOWER**

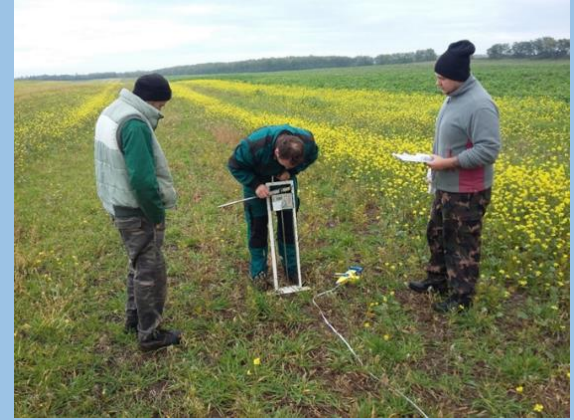
1. **GLOBAL SUN** → *Crotalaria juncea* L.



Sunn hemp



Chinese radish („daikon“)



2. **TILLAGE RADISH** → *Raphanus sativus* L. var. *longipinnatus* Bailey

3. **TILLAGE MIX „TAS“** → 30% buckwheat+ 30% Sudan grass+ 25% Sunn hemp + 7.5% Chinese radish + 7.5% cowpea

4. **TILLAGE MIX „ATTILA N“** → 26% rye + 20% horsebean + 20% fodder pea (*Pisum sativum* subsp. *arvense* L.) + 16% hairy vetch (*Vicia villosa* Roth.) + 12% crimson clover (*Trifolium incarnatum* L.), + 4% fodder radish + 2% white clover

Research related to organic farming  
**GREEN MANURING - SUNFLOWER**



**Stock of Tillage Radish in the green manuring experiment**  
(left: in September 2017, right in January 2018)



**Stock of Tillage Mix „Tas” in the green manuring experiment**  
( in September 2017)

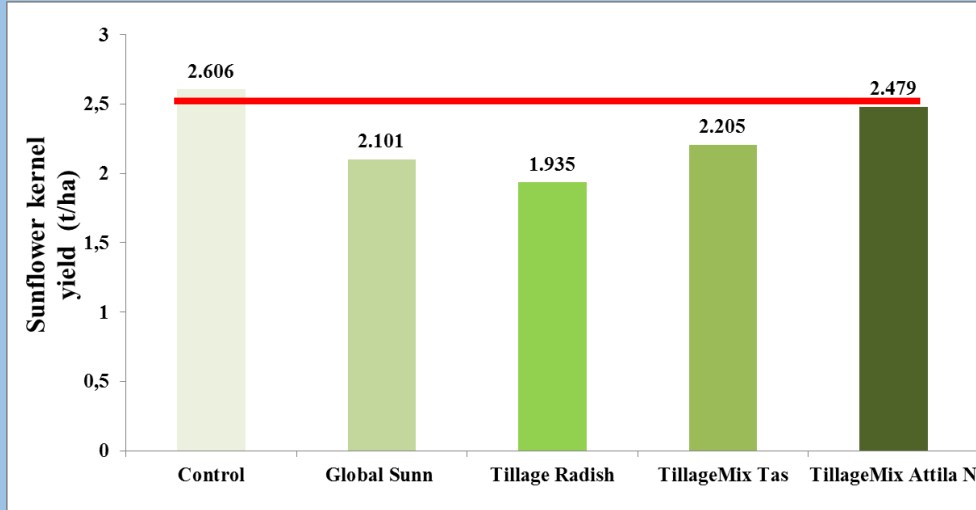
Research related to organic farming  
**GREEN MANURING - SUNFLOWER**



**Stock of sunflower (LG 54.92 HO CL hybrid) in the green manuring experiment  
( in June 2018)**

## Research related to organic farming

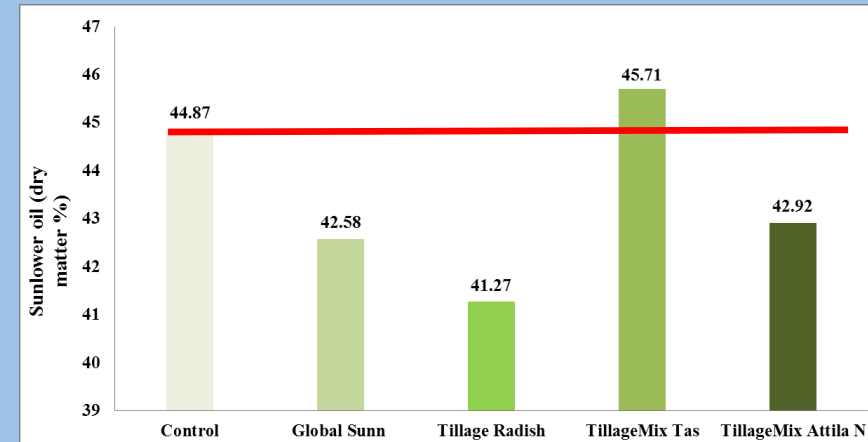
# GREEN MANURING - SUNFLOWER



Sunflower kernel yield in the green manuring experiment  
( in September 2018)

Average precipitation in North-East Hungary  
500-550 mm

Precipitation during 2018 <400 mm



Sunflower oil content in the green manuring  
experiment  
( in September 2018)

# WEED MANAGEMENT – Dr. Miklós Szabó

## Weed flora research

- Hairy vetch
- Fodder peas
- Lupin



HAIRY VETCH



FODDER RADISH

## At every crop two sowing technologies

## Three surveys per year

- Weed species
- Weed coverage
- Annual and perennial weeds



LUPIN



## WEED FLORA OF HAIRY VETCH

- In autumn weed coverage was 1-2%.
- In April weed coverage was similar or less than during autumn.
- In May weed coverage was maximum 5 %.
- Dominant weed species in May were:
  - *Tripleurospermum inodorum*,
  - *Papaver rhoeas*,
  - *Descuriana sophia*,
  - *Fumaria schleihleri*



**HAIRY VETCH  
IN BEGINNING OF APRIL**



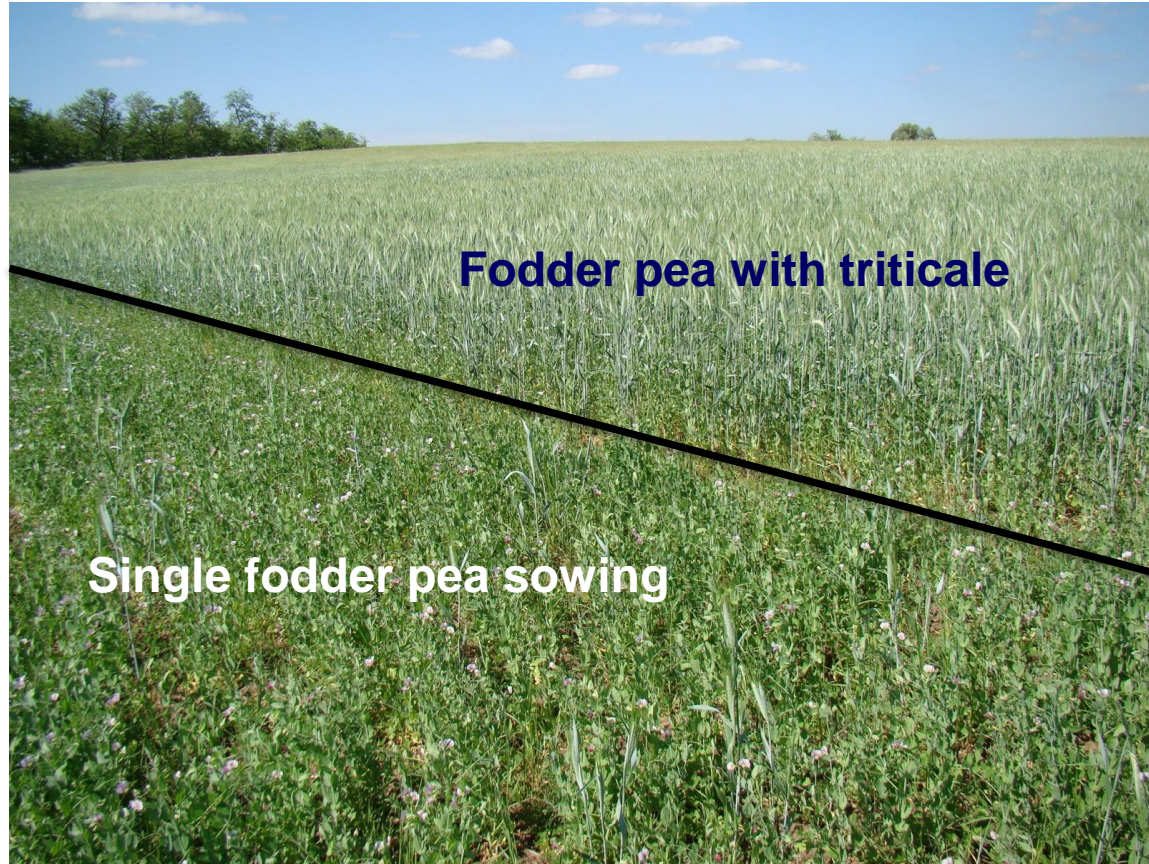
**HAIRY VETCH IN MIDDLE OF MAY**



**HAIRY VETCH FIELD  
BEFORE HARVEST**



# WEED FLORA OF FODDER PEAS



# WEED FLORA OF FODDER PEAS

- In autumn weed coverage was 1-2%.
- In April it was similar or less than during autumn.
- In May
  - Weed coverage was 15-30% at peas with tritica
  - 50-100% weed coverage at single peas fields
  - Dominant weed species in pea stock
    - *Ambrosia artemisiifolia*
    - *Bromus spp.*
    - *volunteer triticales plants*
    - *volunteer phacelia plants*



**PEAS IN APRIL**



**PEAS IN MAY  
FEW PEAS AND LOT OF *AMBROSIA***



**PEAS MIXED WITH  
WEEDS IN MAY**



# WEED FLORA IN LUPIN



# WEED FLORA IN LUPIN

- Weed coverage was 5-25% in May
- Weed coverage was 50-70% in July
  - Dominant weed species were
    - *Ambrosia artemisiifolia*
    - *Volunteer Helianthus annuus*
  - Other main weed species
    - *Xanthium strumarium*
    - *Echinochloa crus-galli*
    - *Chenopodium album*
    - *Setaria pumila*



***AMBROSIA ARTEMISIIFOLIA***



***VOLUNTEER HELINATHUS ANNUS***





*Xanthium strumarium*



*Setaria pumila*



*Echinochloa crus-galli*





Thank you for  
your attention!

