



Soybean

Ferrarini Monica, IT

Mirandola (MO) Emilia-Romagna, Italia

Organic since 1999

Bio Suisse (since 2006), Demeter (since 2019)



Andrea Ferrarini

Yield enhancing strategy, what makes the farm special?

At least 70% of the land is consistently covered with cover crops or cash crops. Crop rotation includes green manure and cover crops, some of which are used for animal feed to ensure self-sufficiency in forage production. On-farm composting with biodynamic heap.

Optimisation wishes and questions: Challenges in pest and disease control for organic crops. Storage and drying: Difficulties in temporary storage and drying of harvested products. Training gaps: Agricultural workers require better training in using digital technologies for data recording and machinery operation.

Farm: Arable farming, horticulture, and livestock farming, Utilized Agricultural Area (UAA): 137 hectares; Additional land use: 7.5 hectares of forests and hedgerows (outside the UAA), 2.5 hectares of pasture, Crop distribution: 1/3 cereals and forage, 2/3 vegetables; Livestock: 46 head of Angus cattle, with internal breeding and approximately 15 births per year.

Soils: silty clay, clay

Rainfall and temperatures in Mirandola (MO)

| 2003-2023 | J | F | M | A | M | J | J | A | S | O | N | D | Year |
|------------------|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|------|
| Rainfall [mm] | 47 | 55 | 60 | 86 | 91 | 76 | 66 | 75 | 90 | 90 | 92 | 58 | 886 |
| Temperature [°C] | 3.5 | 5.2 | 9.6 | 13.9 | 18.6 | 23.4 | 25.8 | 25.3 | 20.3 | 15.3 | 9.6 | 4.3 | 15.7 |

Crops, yields and fertilisation, 2019-2024 [t/ha]

| Crop rotation | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | Mean |
|---------------|------|------|------|------|------|------|-------|
| 1 Durum wheat | - | - | - | 3.5 | 4.0 | 3.5 | 3.67 |
| 2 Soft wheat | 5.3 | 5.0 | 5.0 | 4.2 | 5.1 | 0 | 4.1 |
| 3 Soybean | 4.0 | 2.0 | 1.9 | - | 5.3 | 1.4 | 2.92 |
| 4 Green Beans | 3.1 | 3.0 | 3.0 | 3.6 | 1.7 | 3.5 | 2.98 |
| 5 Potatoes | 35.5 | 31.0 | 31.0 | 30.0 | 10.0 | 28.0 | 27.5 |
| 7 Onion | 21.6 | 21.6 | 20.7 | 6.6 | 7.2 | 18.0 | 15.95 |

Grains: 86% DM, Potatoes 20% DM; Onions 12% DM. **Fallow and intercrops:** Additional use of winter green manure mixture of faba bean, vetch, and mustard (Sinapis) to cover the soil before sowing a spring or summer crop. Alfalfa is used on some fields to restore nitrogen fertility and to clean perennial weeds

Fertilisation (t/ha*year average per field with

| | | | | | | | |
|--------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Organic fertiliser Tribù (3/3/3 NPK) | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| Cattle solid manure (5/1/6 NPK) | | 22 | 22 | 22 | 22 | 22 | 22 |

Other fertilisers used: 0.4 t/ha Azocor (10.5/42 N/C), 5-20 kg/ha Epso Top S (32.5/16 S/Mg), 100-150 kg/ha Patentkali (30/10/32 K/Mg/S)

Photos: © A Ferrarini

Machinery

Tractors

Power HP

| | |
|-------------------|-----|
| John Deere 6195M | 195 |
| Kubota M5112 | 115 |
| Kubota M7060 | 74 |
| Lamborghini R23-5 | 50 |

Combine

| | |
|-----------------|-----|
| John Deere 2058 | 230 |
|-----------------|-----|

Cultivation

Working width (m)

| | |
|---|-----|
| Cultivator MA/AG SEA NG30/7 | 3 |
| Nardi 2-furrow plow | 1 |
| Mater-Macc MS8100 (for legumes) | 3 |
| JJ Broch (for garlic) | 1.5 |
| Santa Maria GASPARDO (for cereals) | 3 |
| Nodette 2.20m light model (for cereals) | 2.2 |
| Bassi (for onions) | 1.0 |
| Harrow | 4 |
| Hoe | 3 |