



Apple: ECOMETHOD

Aim of the trial

Comparison of different fertilization methods on Golden Parsi da Rosa apple trees.

General information

Conditions of the trial:

Trial location:	Italy – Alto Adige	Density:	3 906 trees/ha, 3,2 m x 0,8 m
Variety:	Golden Parsi da Rosa, 2013	Rootstock:	M9
Soil type:	Franco - sub alkaline		
In cooperation with:	Fondazione Edmund Mach		

Treatments

2 modalities (Randomized block design – 4 repetitions – 18 trees/repetition):

- ⇒ Modality 1: Traditional fertilization (Control)
Nitrophoska Perfect - Agrochem (15-5-20+ 2 MgO + 8 SO₃ + 0.02 B + 0.01 Zn) during the spring season, on April 15, for a total contribution per hectare equal to 67.5; 22.5; 90 for respectively N, P₂O₅ and K₂O.

- ⇒ Modality 2: Programme BMS MN (NTF: Foliar programme without soil fertilization)

Product	Total quantity per ha
Fructol NF	8 kg
Chelal B	2 L
Chelal Noor	6 kg
Landamine Zn	5 L
Chelal Omnical	1 L
Chelal Mn	1 L
Chelal Kubig	1 L
Chelal Alga L	6 L
Urea 46%	6 kg

The entire plot was fertilized for 6 years according to the NTF strategy.

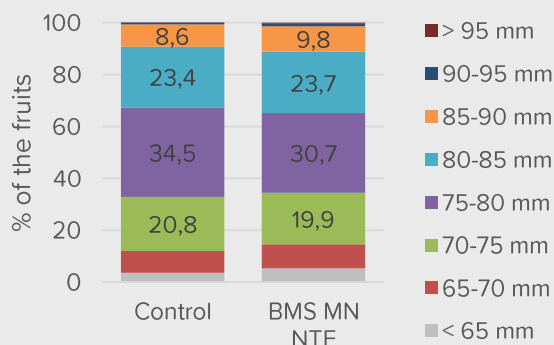
Results

Mean values of the production parameters at harvest:

	Control	BMS MN
Number of fruits/tree	137	148
Yield/tree (kg)	25.2	27.3
Fruit weight (g)	184.6	184.7
Fruit size (mm)	77.2	77.2
Russeting	5.94	5.55
Background colour (on scale of E. Mach)	682.8	682.2
% pink blush	0.16	0.26

- ⇒ No significant differences in production values

Fruit size





Mean values of the qualitative parameters at harvest:

	Control	BMS MN
Brix-value (°Brix)	12.58	12.60
Firmness (kg/cm ²)	7.55	7.30
Juiciness	13.4	12.6
Titratable acids (g/L)	4.95	5.23
Starch	2.60	2.75
Thiault index	162.0	165.0



⇒ No significant difference in quality.

Mean values of vegetative parameters (SPAD and NDVI values) and mineral leaf composition during the growing season:

		Control	BMS MN
SPAD	6 June	41.14	41.14
	25 July	46.22	46.39
NDVI	16 July	0.697 b	0.740 a
	27 August	0.670 b	0.712 a
Mn (mg/kg d.m.)	End of July	19 b	22 a

- ⇒ At both evaluation moments, the NDVI values (vigour and/or photosynthetically active biomass) of the BMS MN modality were significantly higher compared to traditional fertilization (control).
- ⇒ The mineral leaf composition shows that the BMS MN modality has significantly higher values of manganese. There was no difference for the other elements.
- ⇒ **Conclusion:** By applying Ecomethod, CO₂ emissions from fertilization can be reduced by 86%, while still ensuring good production with good quality.

Calculation of the carbon footprint of Ecomethod

Quantity CO ₂ eq. ECOMETHOD	Quantity CO ₂ eq. TRADITIONAL FERTILIZATION (Control)
 CO ₂	 CO ₂
68.2 kg/ha	488.7 kg/ha



CO₂	420.5	The reduction of CO ₂ eq. expressed in kg/ha
% CO₂	86.0%	The saving percentage of CO ₂ eq.