



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) divided into two applications during the spring season, on April 10 and April 23, 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: without soil fertilization)

Product	Total quantity per ha
Fructol NF	8 kg
Chelal B	1 L
Azavis MnZn	10 L
Chelal 3	5 L
Chelal Noor	6 kg
Landamine Zn	5 L
Chelal Alga L	6 L
Urea 46%	6 kg

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

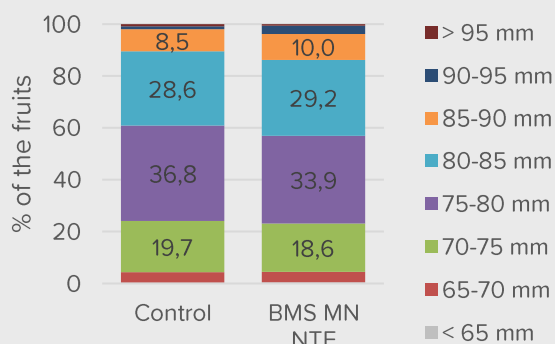
Results

Mean values of the production parameters at harvest:

	Control	BMS MN
Number of fruits/tree	99	101
Yield/tree (kg)	18.6	19.2
Fruit weight (g)	189,0	192,8
Fruit size (mm)	78,9	79,4
Russeting	7,35 a	5,85 b
Background colour (on scale of E. Mach)	678.9	679.4
% pink blush	0,01	0,11

- ⇒ No significant difference in production values
- ⇒ Significantly less russeting in the BMS MN modality

Fruit size





Mean values of the qualitative parameters at harvest:

	Control	BMS MN
Brix-value (°Brix)	13,97	13,85
Firmness (kg/cm ²)	7,38	7,45
Juiciness	14,2	14,3
Titrateable acids (g/L)	4,05	4,03
Starch	3,45	3,25
Thiault index	168,0	166,5



⇒ 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	31 May	40,35	40,53
	5 July	45,71 a	44,70 b
	27 July	45,56	45,91
NDVI	17 July	0,652 b	0,696 a
	21 August	0,622 b	0,679 a
K (% d.m.)	End of July	1,10 b	1,29 a
Mn (mg/kg d.m.)	End of July	22 b	26 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 potassium and manganese. There was no difference for the other elements.
- ⇒ **Conclusion:** By applying Ecomethod, CO₂ emissions from fertilization can be reduced by 84%, 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)
	
127,7 kg/ha	488,7 kg/ha



CO₂	361,1	The reduction of CO ₂ eq. expressed in kg/ha
% CO₂	73,9%	The saving percentage of CO ₂ eq.