



Maize: Viener Zn

Aim of the trial

The aim of this trial is to study the factorial comparison of 3 soils (2 types of silt loam and silt clay loam), the application of localized diammonium phosphate at sowing and the seed treatment with Viener Zn (coating) in a three-year trial.

General information

Conditions of the trial:

Trial location: Italy – Piemonte Variety: Hybrids of the class 600-130 d.
Sowing dates: End of March – beginning of April
Harvest dates: End of September – Mid-October
Soil type: Silt loam and silt clay loam
In cooperation with: Università Degli Studi Di Torino (DISAFA)

Experimental design:

Field trial with a split-plot scheme with microplots; 4 replicates. Area of a microplot: 30 m².

Treatments

12 modalities in total (combinations of the 3 factors below):

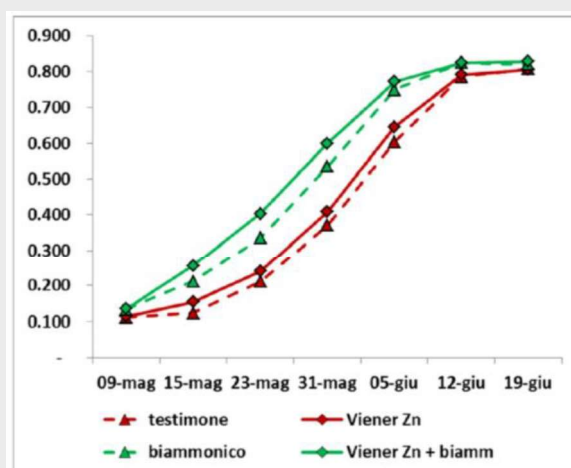
- **3 soil types:**

Parameter	Unit	Silt loam 1	Silt loam 2	Slit clay loam
Sand	%	39.3	20.3	8.4
Silt	%	54.2	64.1	58.2
Clay	%	6.5	15.6	33.4
pH		8.2	6.2	8.0
O.M.	%	1.3	1.2	1.8
C/N		8.6	9.0	7.6
CEC	meq/100 g	8.0	11.6	24.1
N total	%	0.09	0.08	0.14
P ₂ O ₅	ppm	10	42	29
Zn	ppm	1.0	1.2	0.6

- **Localized fertilization:** diammonium phosphate localized at sowing 69 kg/ha P₂O₅ and 27 kg/ha N. Indicated in the figures as "biamm"
- **Viener Zn:** Seed treatment. Dosage: 10 g/kg of seed

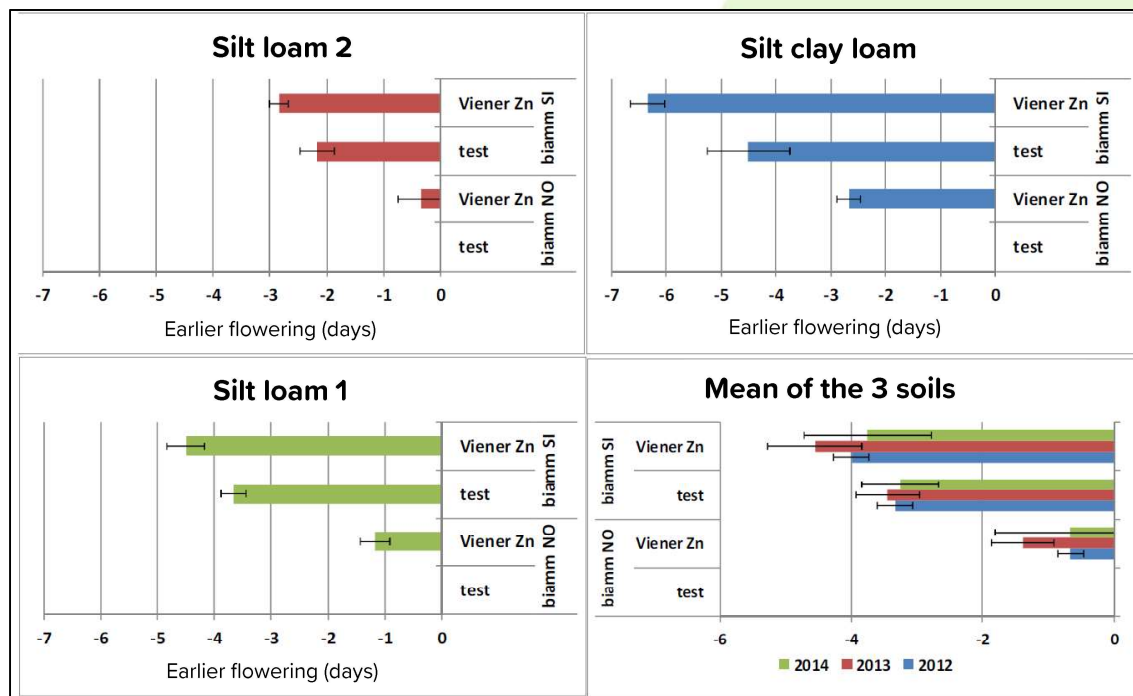
Results

Effect on the leaf cover (NDVI index) during the early stages of the crop cycle in May and June (year 1, average of the 3 soils):





Effect on earlier flowering: comparison of the 3 soils (2013) and mean of the 3 soils (2012-2014):



Effect on grain yield expressed at 14% moisture on the 3 soils during 3 years of testing:

Soil type	Localized fertilization?	Modality	Yield (t/ha)			
			2012	2013	2014	Mean
Silt loam 2	No	Control	10.7	11.6	11.1	11.1 a
		Viener Zn	10.8	10.9	11.6	11.1 a
	Yes	Control	12.1	13.2	12.0	12.4 c
		Viener Zn	12.1	12.9	12.4	12.5 c
Silt clay loam	No	Control	12.1	10.9	12.4	11.8 b
		Viener Zn	12.5	11.2	12.1	12.0 b
	Yes	Control	14.2	12.0	12.3	12.8 c
		Viener Zn	14.7	13.7	12.3	13.6 d
Silt loam 1	No	Control	11.8	12.7	12.5	12.4 c
		Viener Zn	12.5	12.5	12.3	12.5 c
	Yes	Control	14.4	14.4	13.4	14.1 d
		Viener Zn	15.2	15.1	14.9	15.1 e

Conclusion:

The seed treatment with Viener Zn, in the 3 years of trials, showed a clear positive effect on the vigour of the crop with earlier flowering and productive benefits. The data confirm the importance of a localized phosphorus-nitrogen supply, even in soils with a high amount of P and in years with moderately cool springs.

As expected, seed treatment with Viener Zn does not replace nitrogen fertilization and vice versa. However, the data obtained does reveal a clear **synergistic effect** between the 2 practices.