Master project:
Investigation of Gerbera seed set and quality

Stud. MSc Hort. Andrius Hansen Kemezys

Supervisers: Renate Müller

Christian Andreasen

Department of Agriculture and Ecology

Introduction

- ‘Sakata Ornamentals Europe’ A/S was interested in better seed set and seed quality of Gerbera.
- Mineral soil solution and foliar Ca2+ application were identified as important factors as well as temperature.
- Gerbera can be regarded as a model for ornamental plants.

Objective

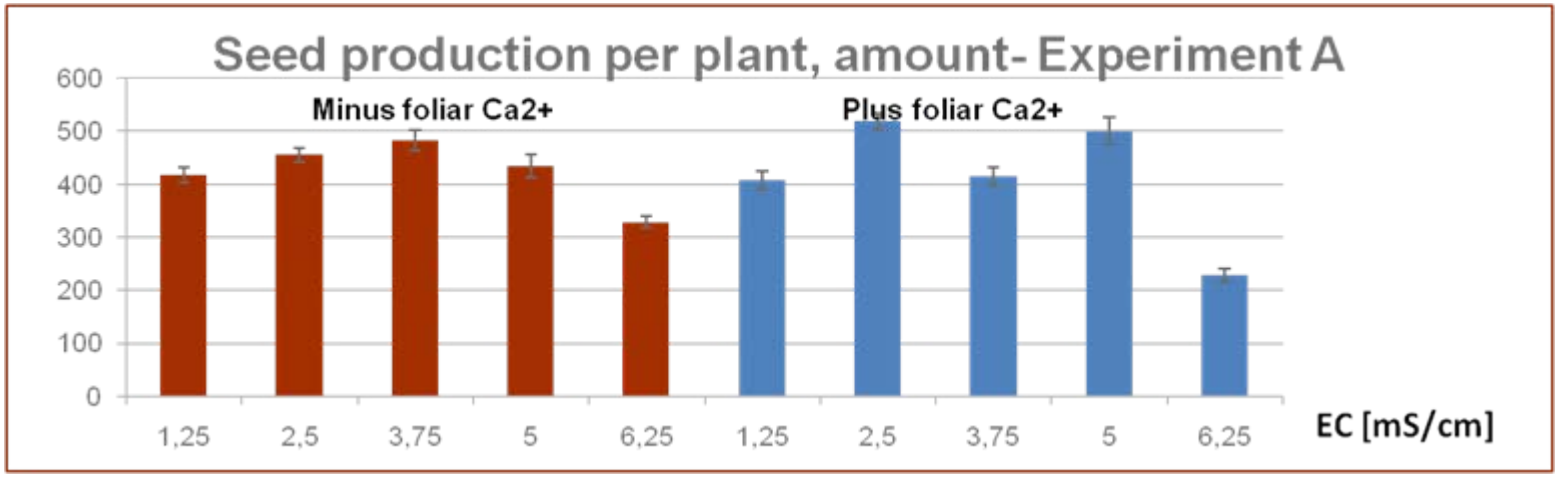
Investigate Gerbera seed set and seed quality by following factors:

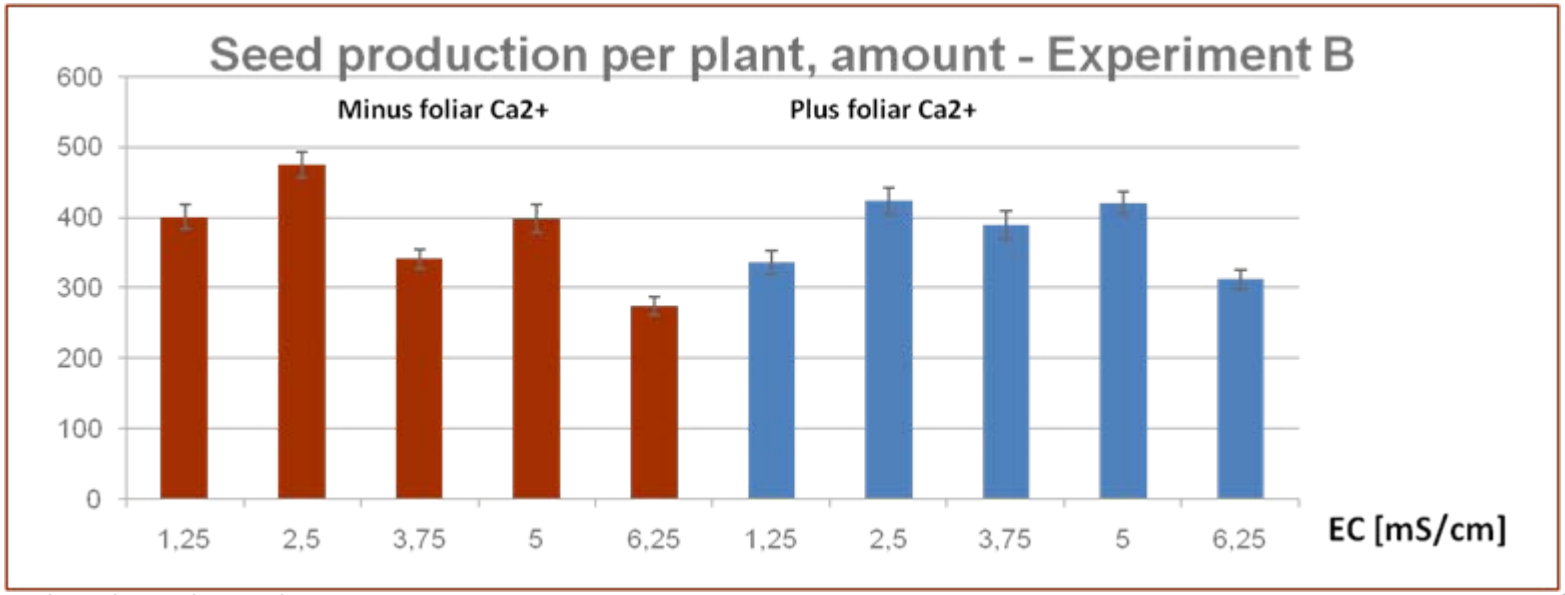
- Different concentration of mineral nutrient sollution
- Foliar Ca2+ application
- Different temperature conditions (second experiment)

Materials & Methods

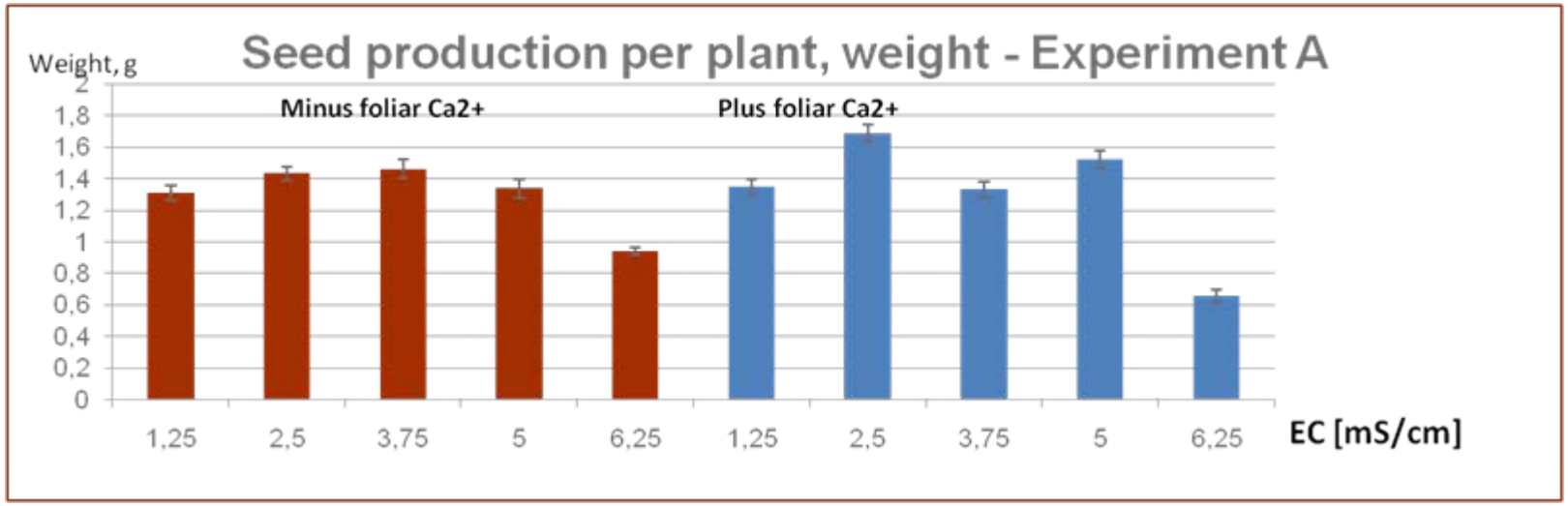
- Two independent experiments for the fertilizer experimental part were performed.
- Nutrient solution from 1,25 to 6,25 mS/cm (EC) were applied manually during the whole growth period.
- Three foliar applications of 0,5% Ca2+ were conducted.
- Flowers were pollinated.
- Seeds were harvested, dried, cleaned, counted and weighted.

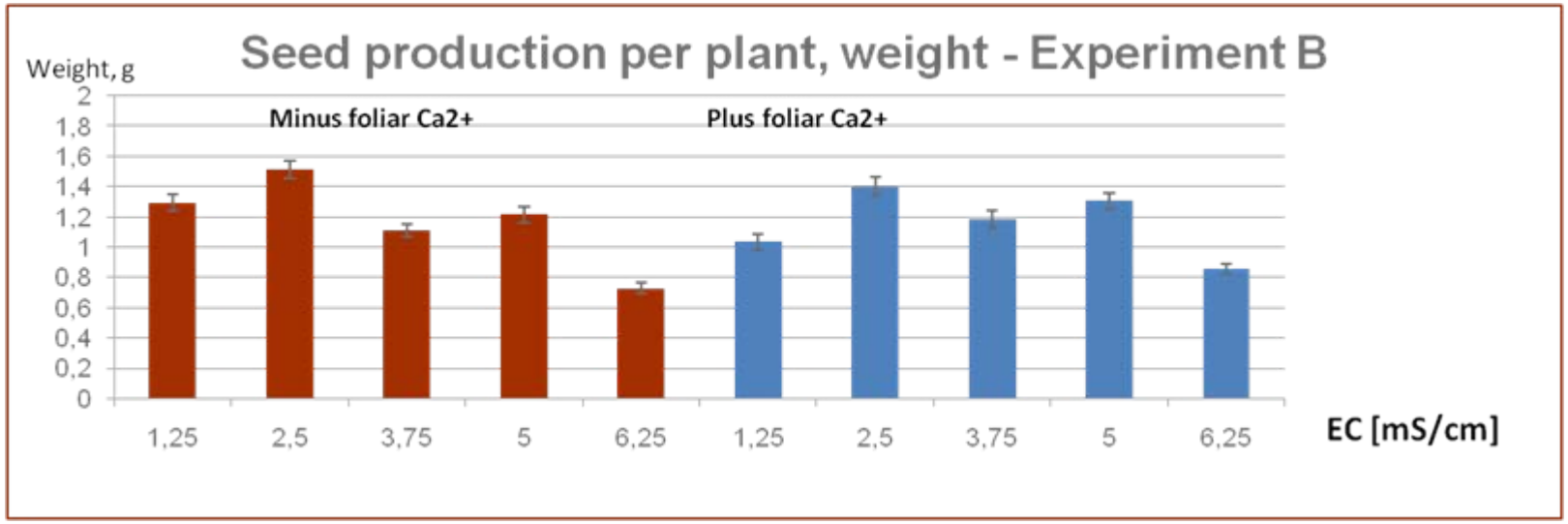
Results I


Seed production per plant, amount- Experiment A
Minus foliar Ca2+
Plus foliar Ca2+
600
500
400
300
200
100
0
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]

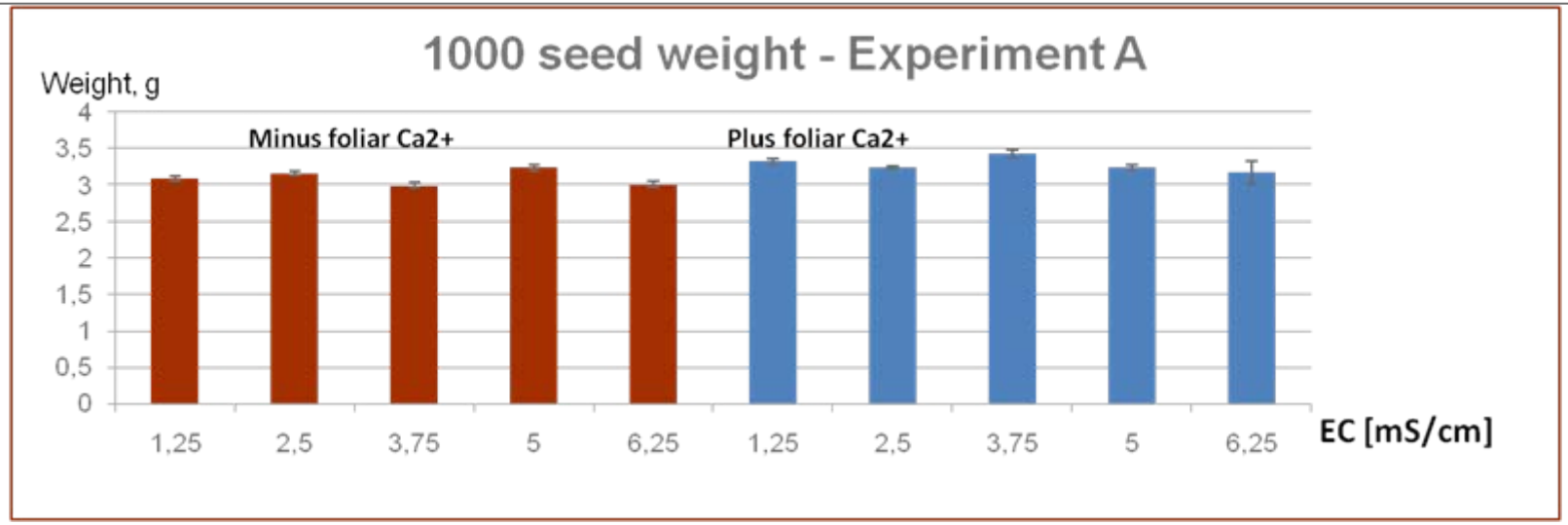

Seed production per plant, amount - Experiment B
Minus foliar Ca2+
Plus foliar Ca2+
600
500
400
300
200
100
0
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]

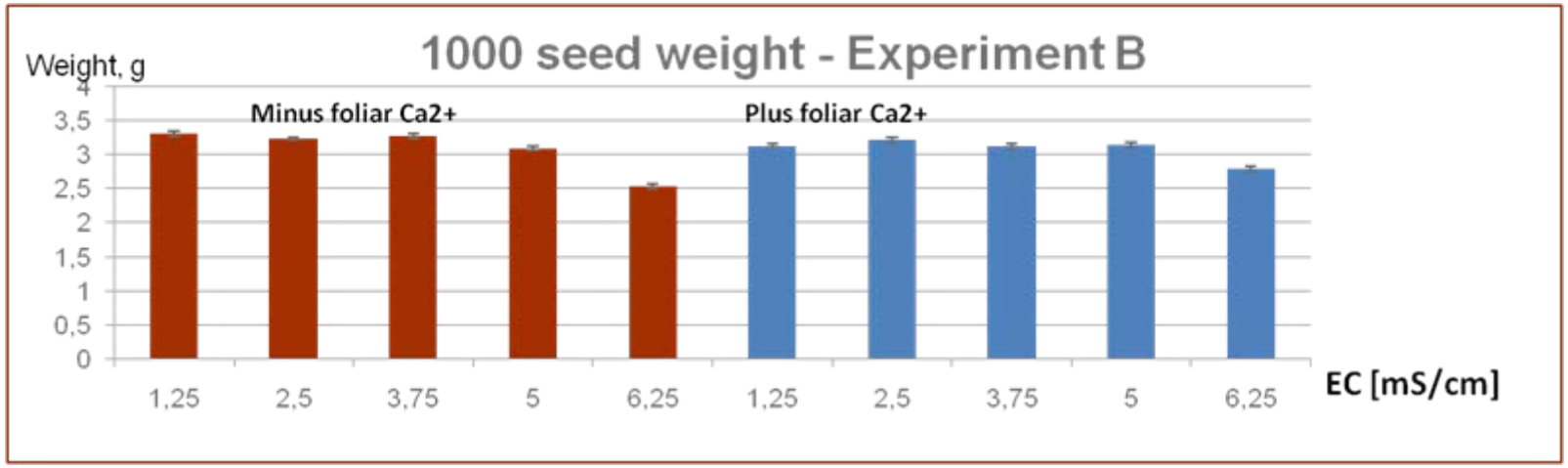
Results II


Seed production per plant, weight - Experiment A
Weight, g
Minus foliar Ca2+
Plus foliar Ca2+
2
1,8
1,6
1,4
1,2
1
0,8
0,6
0,4
0,2
0
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]

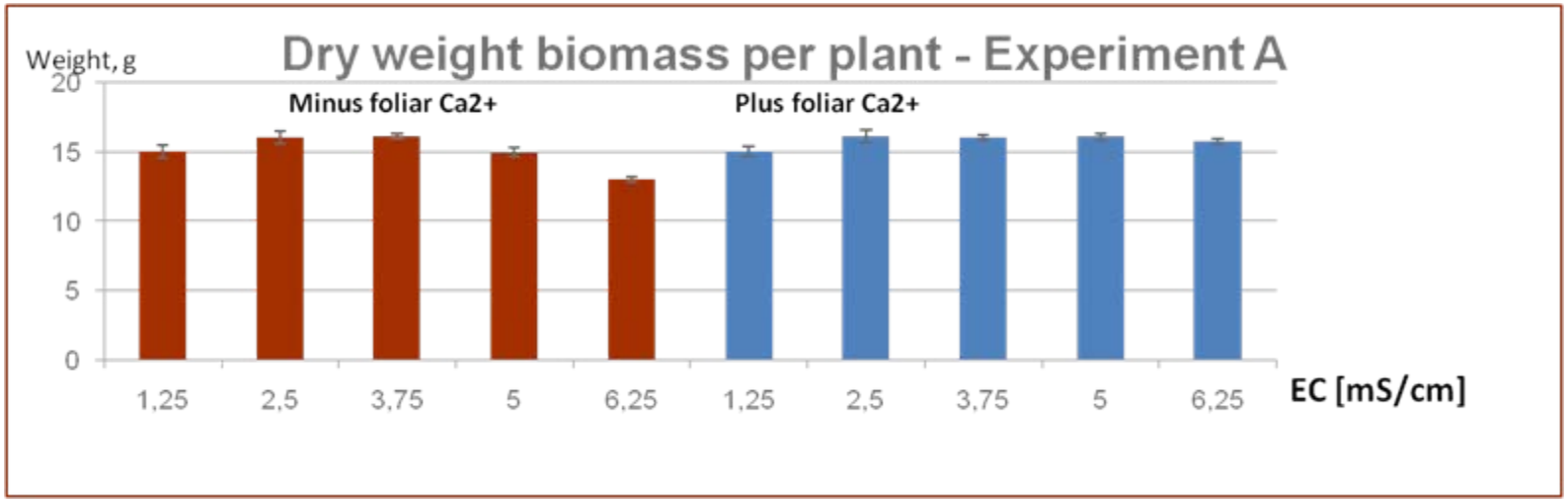

Seed production per plant, weight - Experiment B
Weight, g
Minus foliar Ca2+
Plus foliar Ca2+
2
1,8
1,6
1,4
1,2
1
0,8
0,6
0,4
0,2
0
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]

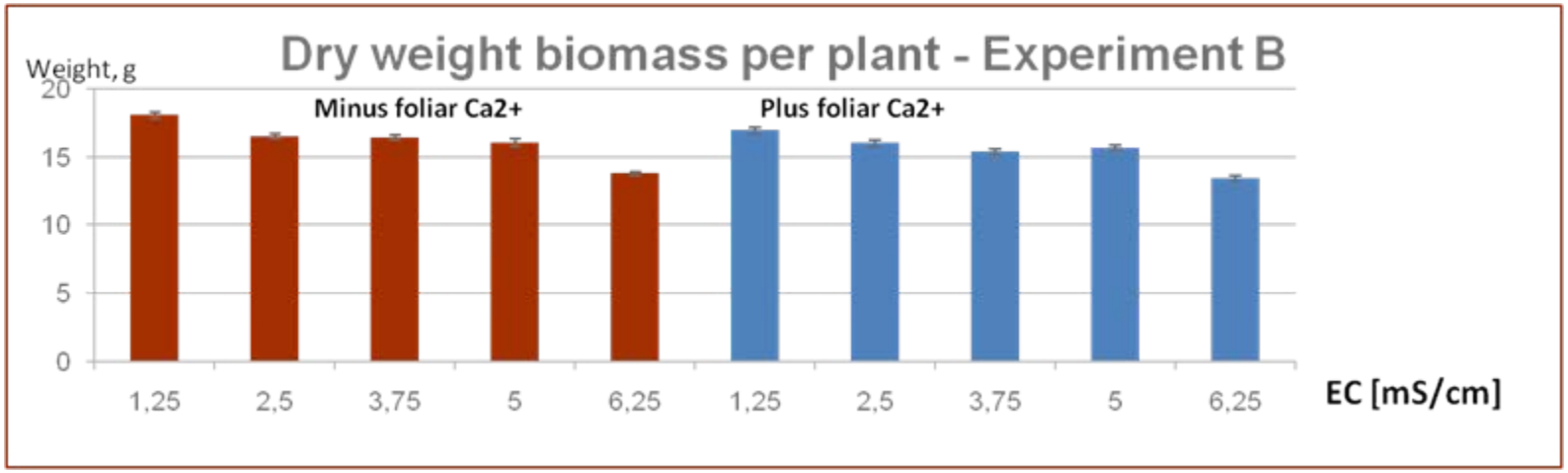
Results III


1000 seed weight - Experiment A
Weight, g
4
3,5
3
2,5
2
1,5
1
0,5
0
Minus foliar Ca2+
Plus foliar Ca2+
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]


1000 seed weight - Experiment B
Weight, g
4
3,5
3
2,5
2
1,5
1
0,5
0
Minus foliar Ca2+
Plus foliar Ca2+
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]

Results IV


Dry weight biomass per plant - Experiment A
Weight, g
20
15
10
5
0
Minus foliar Ca2+
Plus foliar Ca2+
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]


Dry weight biomass per plant - Experiment B
Weight, g
20
15
10
5
0
Minus foliar Ca2+
Plus foliar Ca2+
1,25
2,5
3,75
5
6,25
1,25
2,5
3,75
5
6,25
EC [mS/cm]

Results to be obtained

Germination test – a qualitative approach

- Ordinary germination test
- Germination speed test
- Hopefully clearer difference between the treatments

Concluding remarks

- Seed production was observed to be highest at EC 2,5 regardless of Ca2+.
- Seed production, 1000 seed weight and plant dry weight biomass was observed to be lowest at EC 6,25 regardless of Ca2+.
- Ca2+ foliar treatment did not seem to have a significant effect.

Thank you!