HZPC'S VIEW ON THE VITAL COASTAL REGIONS

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>100 YRS OF HISTORY BUILDS AN INNOVATIVE DYNAMIC FUTURE

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>1,5 bln people are reached by HZPC's potato nutrition

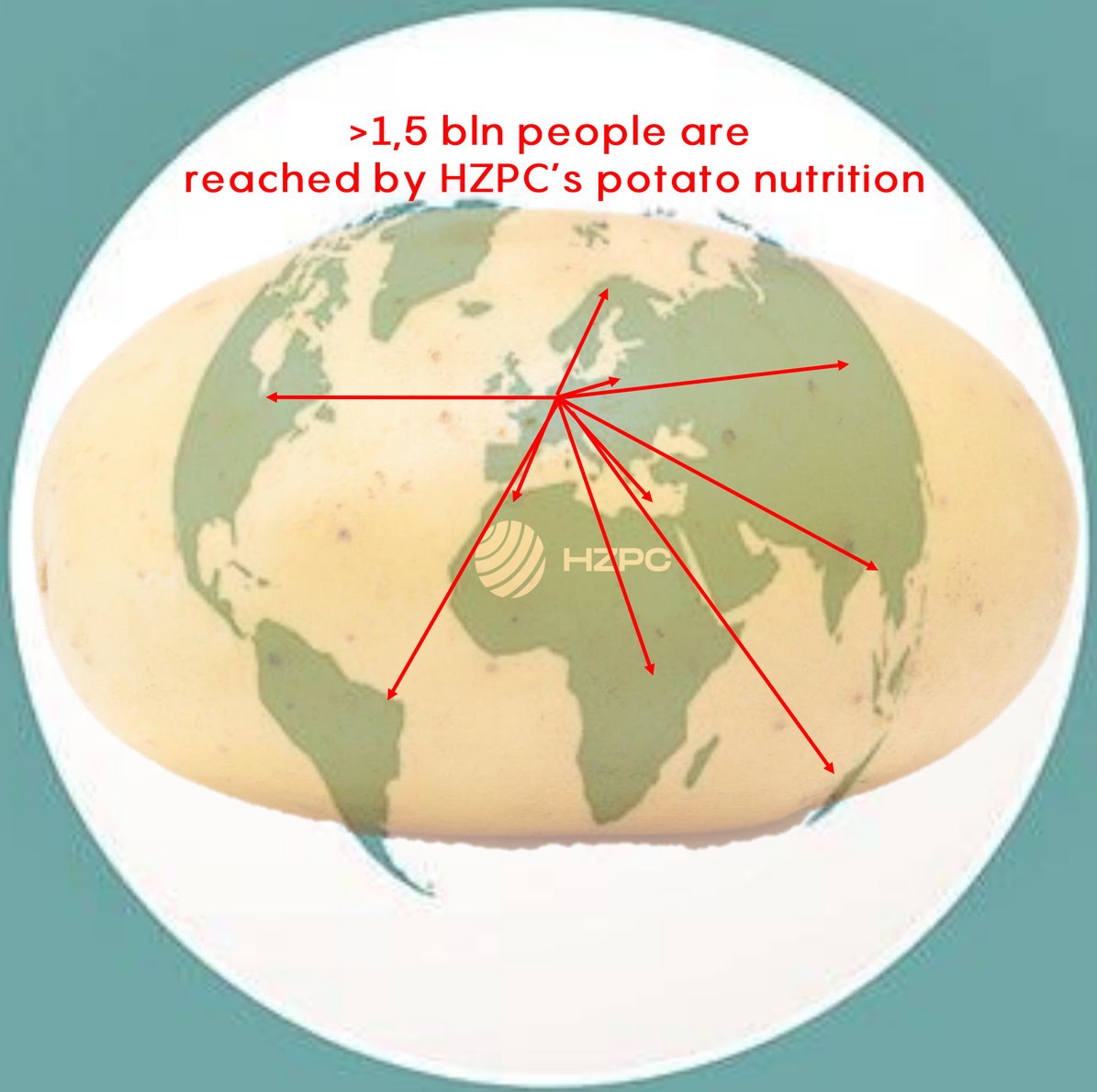

Illustration: Niklas Elmehed

THE NOBEL PEACE PRIZE 2020

World Food Programme (WFP)

"for its efforts to combat hunger,
for its contribution to bettering conditions
for peace in conflict-affected areas and for acting
as a driving force in efforts to prevent the use
of hunger as a weapon of war and conflict"

THE NORWEGIAN NOBEL COMMITTEE

THE HZPC'S GLOBAL BUSINESS

Varieties reach >95 countries, >60 countries have Dutch/EU seed potato origen

HZPC CONTRIBUTES TO VN GOALS 1 AND 2!

- HZPC potato varieties, grown locally, provide as cash crop and food crop income and nutrition!

- Exporting seed potatoes from e.g. the coastal regions of the Netherlands provide vital seed potatoes to grow this 3rd staple cash & food crop!

- Highly productive soils in delta's and coastal area's are to be taken care of to remain productive and vital by healthy soils and smart sweet water management. Many countries request and need vital Dutch seed potatoes!

binnendijks - buitendijks

We are neighbours in co existence, with different approaches, with mutual respect and balance

ATTENTION POINTS TO DUTCH COASTAL/NORTHERN CLAY SOILS

- Highly productive soils are mainly and globally found in delta's and coastal area's. As we have at hand!
- Dutch coastal region is highly productive and vital growing area. Farmers invest more and more in sustainable production and healthy resilient soils.
- Healthy soils are rich in oxygen, organic matter, balanced microbiomes, insects.

- These area's are to be taken care of to remain productive and vital
  - Prevent zero oxygen soils by saline conditions, in clay soils there is no return and value collapses
  - Create smart water and nutrition management: technology by fertigation and DSS

- Focus on healthy soils and smart sweet water management

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Evaluation of Potato Varieties against Salinity Stress in Bangladesh

S. Munira[1*], M. M. Hossain[1], M. Zakaria[1], J. U. Ahmed[2] and M. M. Islam[3]

frontiers in Plant Science

ORIGINAL RESEARCH
published: 05 June 2018
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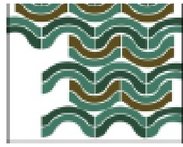
Salinity Tolerance of Two Potato Cultivars (*Solanum tuberosum*) Correlates With Differences in Vacuolar Transport Activity

Rinse Jaarsma and Albertus H. de Boer**

Faculty of Earth and Life Sciences, Vrije Universiteit Amsterdam, Amsterdam, Netherlands

ricultural Water Management

rnal homepage: www.elsevier.com/locate/agwat



A case study with potato

M. Blom-Zandstra, W. Wolters, M. Heinen, C.W.J. Roest, R.W. Smit & A.L. Smit

Estimating cultivar-specific salt tolerance model parameters from multi-annual field tests for identification of salt tolerant potato cultivars

G. van Straten [a,*], B. Bruning [b,1], A.C. de Vos [b,1], A. Parra González [b,2], J. Rozema [c], P. M. van Bodegom [d]

Agricultural Water Management 213 (2019) 375–387

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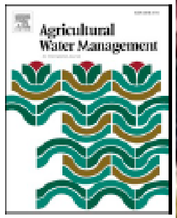


An improved methodology to evaluate crop salt tolerance from field trials

G. van Straten[a,*], A.C. de Vos[b], J. Rozema[c], B. Bruning[d], P.M. van Bodegom[e]

SALINE TOLERANCE, WHAT IS THE CONCERN

- Saline tolerant varieties means a decline in yield but slower decline when grown in saline conditions
- Saline tolerant varieties are needed in food production regions like Bangladesh, Middle East, …
- Seed potatoes of saline tolerant varieties must be grown on highly productive *non* saline soils of our Dutch coastal area

RESPONSE AND AMBITIONS

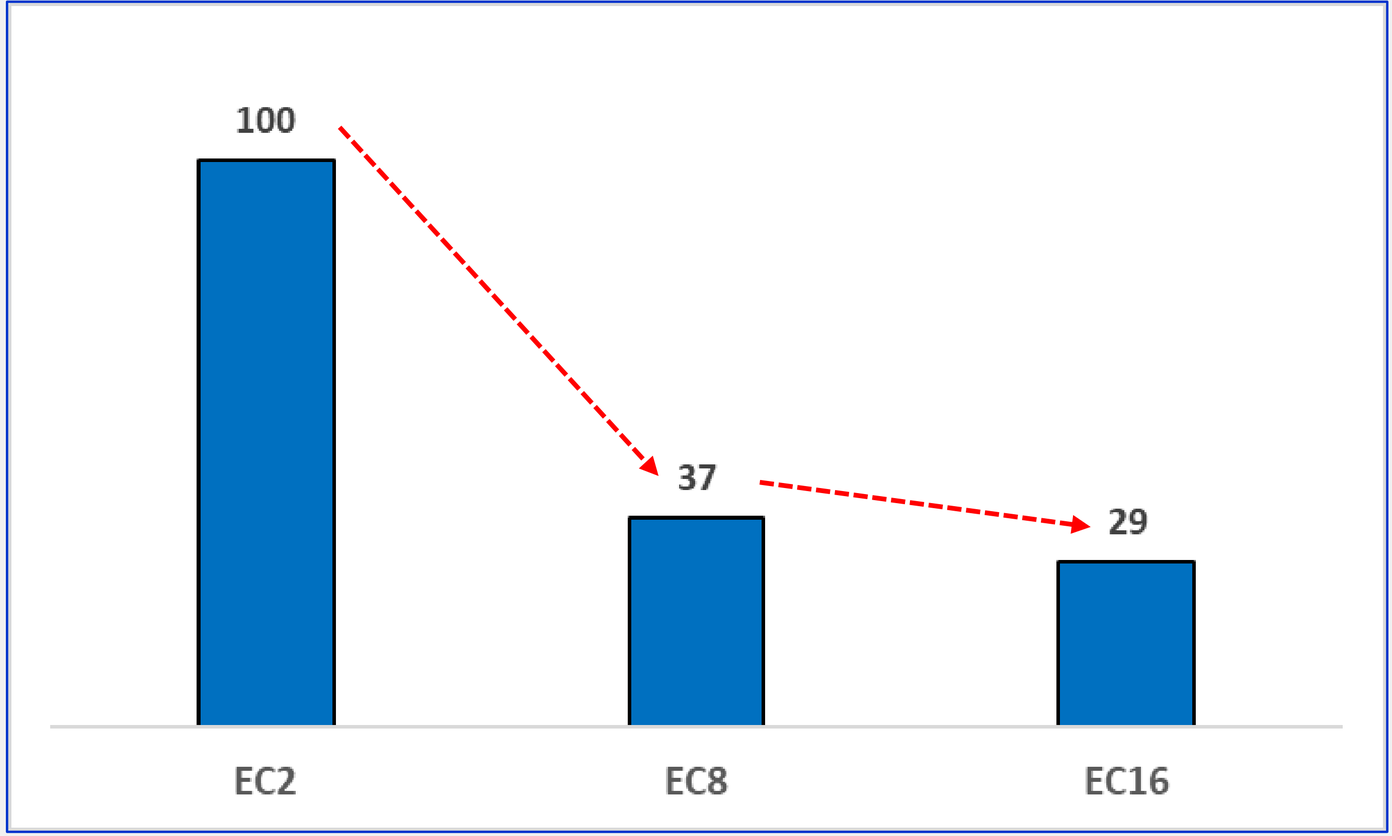
Zilt Proefbedrijf
Tested on Texel

On Texel (NL), 2017:
- 10 varieties
- 6 EC levels

2017-2021 , Egypt, Nile Delta : 50 varieties
EC levels: EC 0, EC 4, EC 8, (EC16)

EFFECT OF SALINITY ON POTATO YIELD

- 63% decrease in yield from EC2 to EC8
- Smaller tuber size
- Tuber shape gets more round
- But… many differences between varieties



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SIFRA

SAGITTA

VARIETY DIFFERENCES IN PRACTICE
NO FOOD YIELD <–> REASONABLE FOOD YIELD

Variety Sagitta under harsh saline conditions (EC16)

Commercial market standard under harsh saline conditions (EC16)

AMBITIONS

Which products do we want to offer in 2021 and beyond?

- High yielding - low input
- Adaptation and resilience: optimal stability (years) and adaptability (climate change)
- Durable resistance to multiple pests and diseases
- Biofortification: nutrient dense varieties i.e. high in vitamine C, Fe, Zn, Cu and Mg
- Low levels of reducing sugars to avoid accumulaition of acrylamide
- Multipurpose character of varieties (versaltility and across sectors)
- Consistency in taste (taste, flavour, aroma and texture)


THANK YOU! Q'S?

HZPC

CHALLENGES TO PRODUCE SEED POTATOES LOCALLY WHY DUTCH SEED?

1. Minitubers are the highest grade of seed potato to start your multiplication. This requires a deep investment in facilities and know how.

2. Minitubers are sold by piece, a deep starting investment for a farmer which he earns back after 4-5 field generations of multiplication.

3. The 4-5 years field multiplication is done in a secure environment with low disease pressure for virus and bacteria. This will result in high class seed with vigour to produce a high yielding crop per ha. The acreage is too much to grow in controlled greenhouses.

4. Due to relative high import costs local countries sometimes choose for one year of additional multiplication. This is an acceptable risk to loose quality without loosing too much yield. Local diseases, mainly viruses, are destroying the quality and vitality of the seed potatoes. The yield potential will go down.

So far effort to produce all cycles locally in Middle East of North African countries have not been successful. Step 1. is doable by import or own production but the 4-5 years field multiplication breaks down in full crop losses.