



EUROPLANT

Pflanzenzucht GmbH

Potato workshop - Cambodia

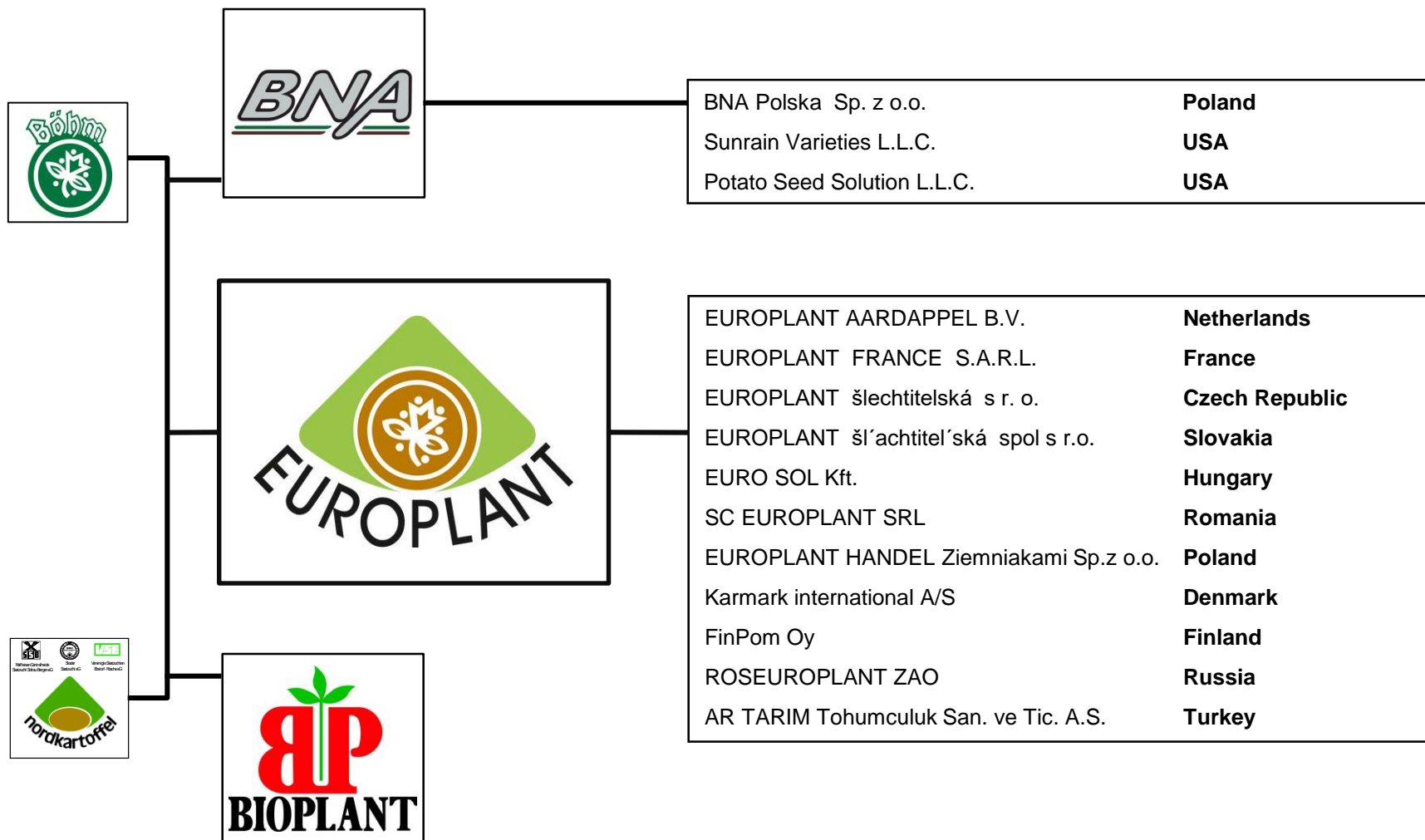
Kamal Smid
March 2018



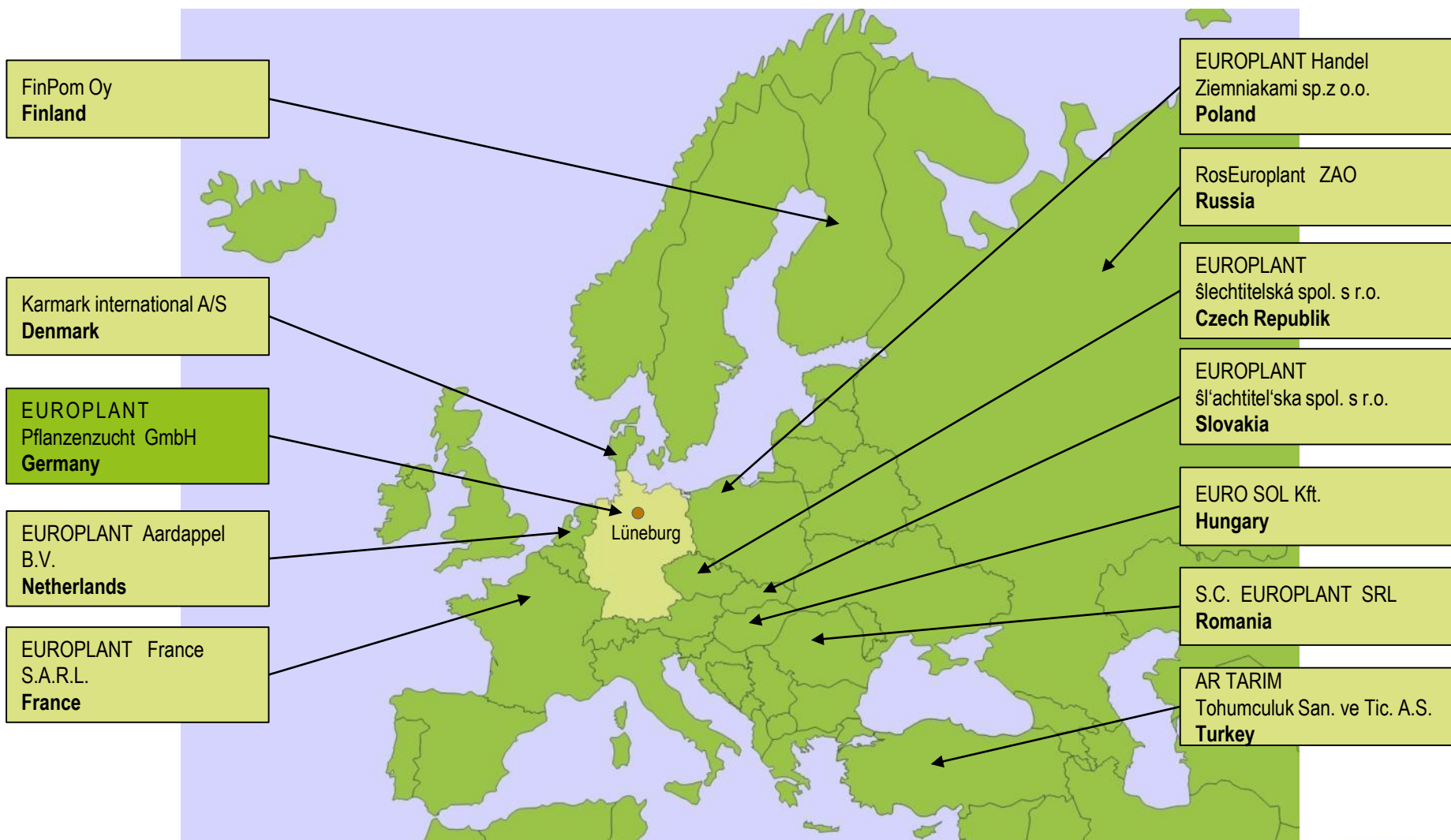
Content of the presentation

- Europlant company structure
- Potato market in South East Asia
- Europlant varieties for Cambodia
- Cultivation of potatoes
- Water requirements
- Erwinia bacteria
- Cutting seed potatoes
- Crop rotation
- Questions and discussion

EUROPLANT - company structure



EUROPLANT international



EUROPLANT Group

- Administrative Centre
 - Europlant Pflanzenzucht
 - Kartoffelzucht Böhm
 - Böhm-Nordkartoffel Agrarproduktion
- ★ Breeding Station
+ PSS in Idaho (USA)
- ★ Related Breeders
 - Saatzucht Berding
 - Saatzucht Pohl
 - Zuchtbetrieb R. Jacobs
 - Mansholt Kweekbedrijf BV
 - VSUZ (Slovakia)
- ★ Maintenance Breeding Station
- ✕ Seed-Production Farms
in EU-High Grade Area
- ◆ Advanced Yield Trial Fields



Böhm-Nordkartoffel Agrarproduktion



- Breeding (new varieties) and variety maintenance
- 3 own breeding and trial stations;
1 joint breeding station in the USA;
5 associated partner breeders
spread in Germanys main potato production areas
(Lower Saxony, Mecklenburg-Western-Pomerania, Bavaria)
and Netherlands
- Production of pre-basic and certified seeds
under highest phytosanitary standards
(closed production system, EU-protected high-grade area,
healthy locations)

Potato Varieties For All Climates

Breeding Targets

- yield
- maturity
- pest and disease resistance
- drought and heat tolerance
- tuber quality
 - external
 - internal
- processing ability



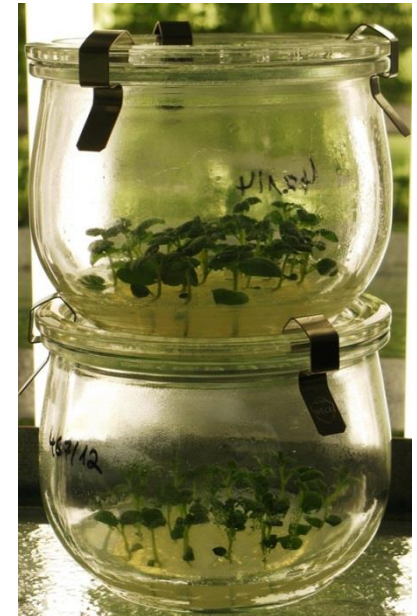
Variety-Development

year	number	step of breeding process
1		crosses (approx. 800 cross combinations)
2	300,000	seedlings (greenhouse)
3	150,000	single hill plants /(open field)
4	12,000	clones
5	2,000	clones, 3 locations (domestic)
6	250	clones, 7 locations (domestic and abroad)
7	30	clones, additional locations
8	5	clones, VCU-trials (I), additional locations
9	5	clones, VCU trials (II), additional locations
10	3 - 5	new registered varieties

BIOPLANT



- maintenance of potato stocks in sterile environment (gene bank – living collection)
- micro-propagation under sterile conditions
- Strict Quality Management System (avoid any microbiological contamination!)
- Cultivation of plantlets in protected greenhouses (BNA)
- All steps strict under official control (virus and bacteria diagnostics plant health service)
- **Ensure 100% healthy seed material**



Healthy Seed Potatoes

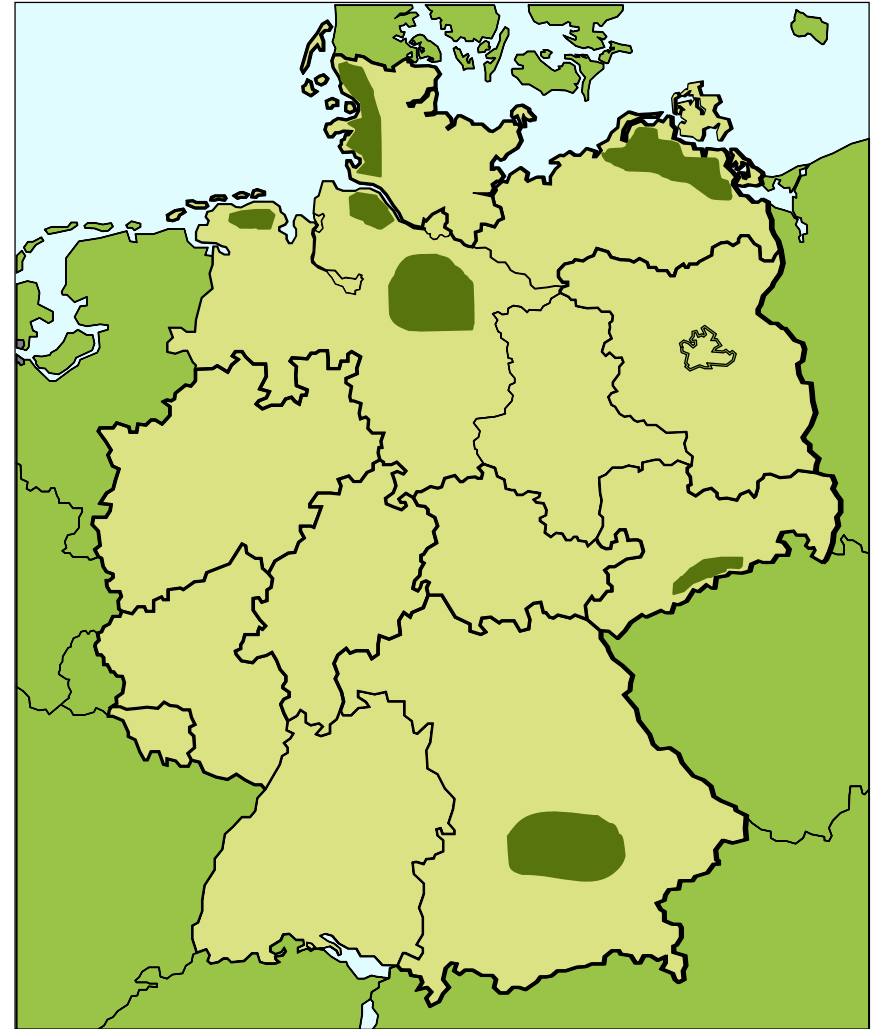
- micro-propagation
- mini-tuber production
- seed potato production in healthy areas



EUROPLANT Seed Potatoes:
100% based on micro propagation !

Main Seed Potato Production Areas

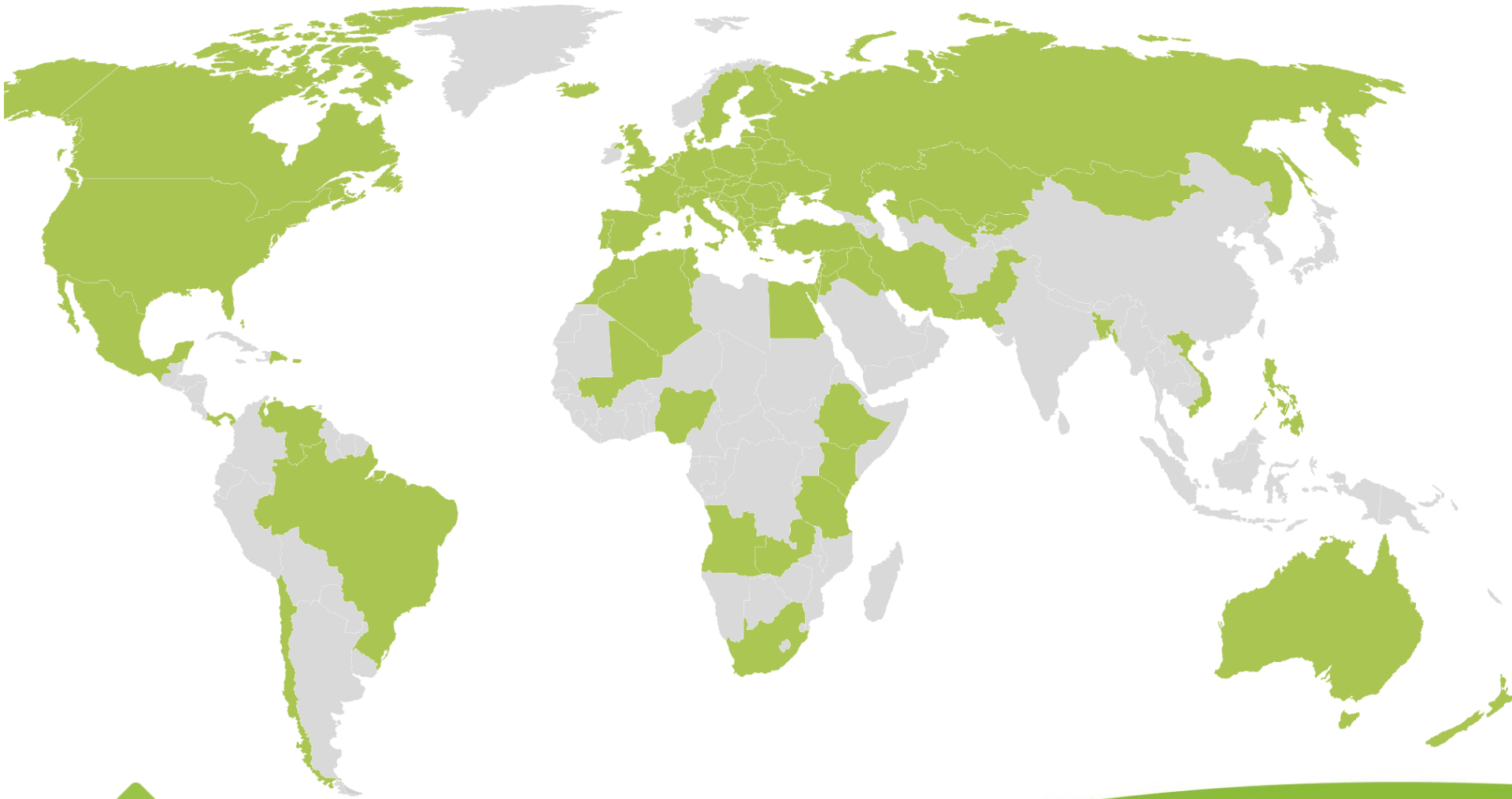
- Schleswig-Holstein
- Mecklenburg- Western Pomerania
- Lower Saxony
- Bavaria
- Saxony (Ore Mountains)
- EUROPLANT network (Europe)



EUROPLANT in figures

- Production and sales of more than 100 varieties world-wide
- 8.000 ha seed production in Germany
- 4.000 ha seed production in other European countries
- 12.000 ha seed production
 - 700 hectares are high grade levels
 - Multiplication of high grade levels in isolated areas
- 250.000 mt of seed potatoes traded annually
- Cooperation with breeders, universities and research institutes in Germany, Netherlands, France, Austria and Italy

EUROPLANT – worldwide active in more than 70 countries



Potato market in South East Asia



Opportunities in South East Asia

- Increasing potato market
 - Varieties for crisps, French fries and table
- Demand for high yielding potato varieties
- Potato varieties with disease resistance
- Efficient with water use



Eurolant varieties for Cambodia

- Concordia
- Coronada
- Jelly
- Julinka
- Georgina
- Madeira
- Sorentina
- Red Fantasy



Concordia

- Medium early maturity
 - Table variety
 - Good drought tolerance
- Attention points:
 - Take care of a good skin set before harvest

Coronada

- Medium early maturity
 - Table variety
 - Large sized tubers
- Attention points:
 - Take care of a good skin set before harvest (5-7 days longer than average)
 - Slightly sensitive to Metribuzin, post emergence application should be avoided

Jelly

- Medium late maturity
- Multipurpose variety
 - Table
 - French fries
- Tasteful variety
- Perfect adaptability to all climate conditions
 - Attention points:
 - Slightly sensitive to Metribuzin, dose rates post emergence application should be avoided.
 - Bulking up at the end of growing period
 - Preventive control of early blight (altenaria) is generally recommended
 - 20% less nitrogen in comparison to other medium late varieties

Julinka

- Early maturity
 - Table variety
 - Excellent suitability for pre-packing
 - Very high marktable yield
- Attention points:
 - Plant 2 cm deeper than usual, due to high yield potential
 - 20% less nitrogen in comparison to other early varieties

Georgina

- Medium early maturity
 - Table variety
 - Very smooth skin
 - Uniform grading
 - Good taste
- Attention points:
 - Take care of common scab
 - Be sure to give a regular water supply to keep an healthy crop till the final part of the crop cycle

Madeira

- Medium early maturity
 - Table variety
 - Very smooth skin
 - Uniform grading
 - Excellent suitability for packing
- Attention points:
 - Slightly sensitive to Metribuzin, post emergence application should be avoided
 - 20% less nitrogen in comparison to other medium early varieties
 - Plant 2 cm deeper than usual

Sorentina

- Medium early maturity
- Crisping variety
- Suitable for cold storage
- Round and uniform tubers

Red Fantasy

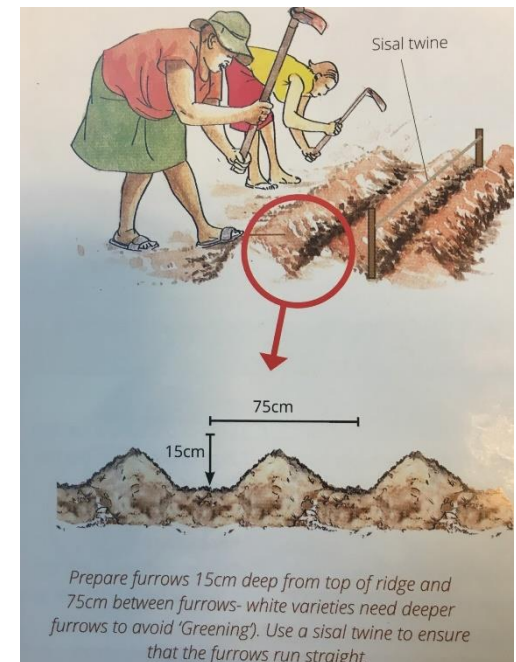
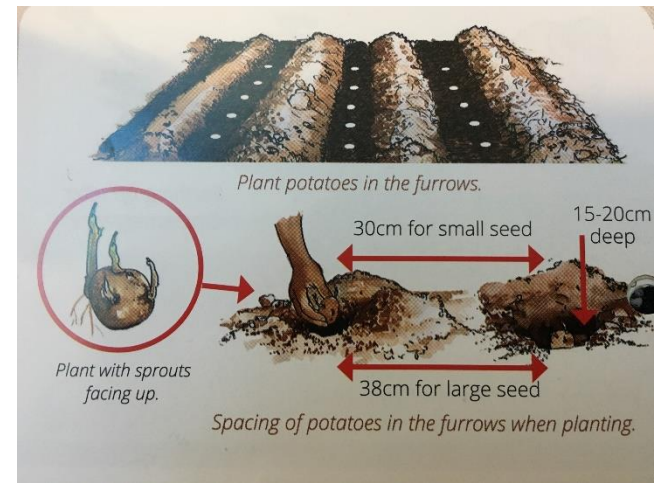
- Medium early maturity
 - Table variety (red skinned)
 - Good disease resistance
 - Perfect adaptability to all climate conditions
 - Very good table quality
- Attention points:
 - Slightly sensitive to Metribuzin, pre and post emergence application should be avoided
 - 20% less nitrogen in comparison to other medium early varieties

Growing potatoes

- Selection criteria

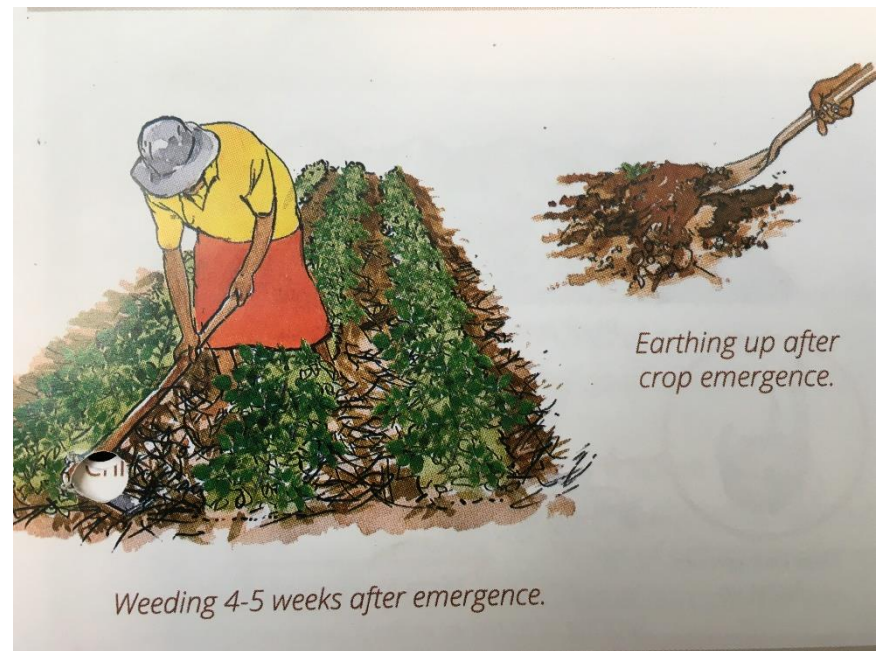
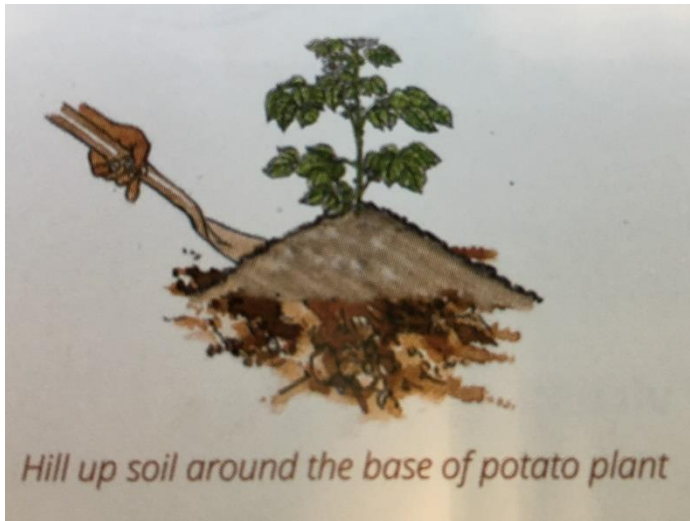
- Use fallow land or land that for at least 2 previous seasons has not been planted crops from solanacea family like: tomatoes, capsicums, peppers, ect.
- Avoid waterlogged soils
- Choose a gently sloping site with proper drainage
- Avoid areas near tall trees

It is important to measure planting area !



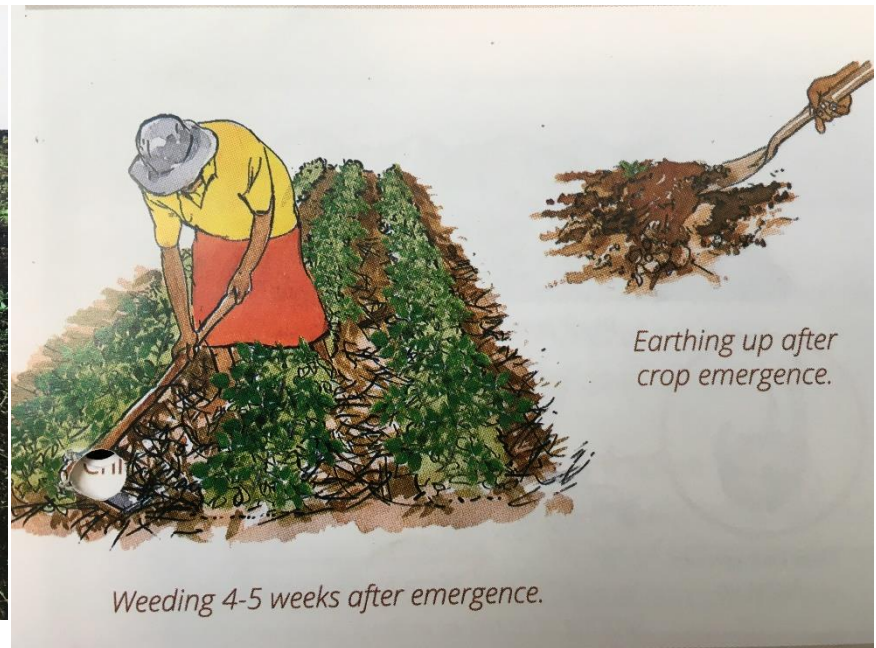
Planting

- Potatoes should be planted in furrows at a spacing of 75 cm between furrow
- Place the tubers at a depth of 15-20 cm with the sprouts facing up for faster and uniform emergence
- Cover the furrows flat ensuring that all tubers are covered by soil
- Earthing up after crop emergence



Weeding

- Do first weeding 1-2 weeks after emergence
- 2nd weeding and earthing-up is done 4-5 weeks after crop emergence



Water requirements/irrigation

- A continuous amount of moisture is necessary for maximizing yields and quality of potatoes
- Do not overwater. Over watering leads to build up of fungal diseases and poor soil aeration
- Stop irrigation about two week before haulm killing



Black leg – *Erwinia* spp

- Rotten tubers infectious → smearing
- Introduction difficult to avoid
- Often latent infections
- No chemicals to control blackleg
- No resistant varieties

Black leg – *Erwinia* spp

- Aerial stem rot & tuber soft rot
- Black leg begins from a contaminated seed piece
- Stem bases – an inky-black to light-brown decay
- These enlarge into a soft, mushy rot that causes entire stems to wilt and die
- Leave-roll upward at the margins, become yellow, wilt & often die



Inky black to light-brown stem decay of blackleg originating from the potato seed piece and extending above ground up the stem. Note wilting leaves of infected plant.



Irregular, brownish black, soft, mushy stem lesions characteristic of aerial stem rot

Black leg – *Erwinia* spp management and control

- Plant only certified, disease-free seed potatoes
- Hygiene and cultural practices
 - Wash and disinfect machines and materials
- Avoid over-irrigation
 - Avoid water logging of soil → drainage
 - Don't use surface water for irrigation
- Selection of diseased plants (roguing) : only useful early in season
- Harvest tubers only after a full skin set
 - Avoid wounding → set machines carefully
 - Harvest under dry conditions
 - Remove rotten tubers from harvesters
- Store tubers in well-ventilated rooms at low temperatures

Dry, dry, dry



Cutting seed potatoes



Introduction

- Cutted seed higher risk of spreading diseases
- Irregular emergence
- Cutted seed easily start rotting



Advantages un-cutted seed

- More equal emergence
- Less risk of spreading diseases
- More power in heavy circumstances



Advantages of crop rotation

- Less soil borne diseases (nematodes)
- Higher yields
- Less diseases pressure
- Better for soil structure

Questions and discussion ???



Thanks you for your attention !!

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EUROPLANT **INTERNATIONAL** 



LANGUAGE: **DEUTSCH**



SORTENFINDER

Alle Sorten auf einen Blick



IHR BERATER VOR ORT

Ansprechpartner nach Regionen



TERMINE & VERANSTALTUNGEN

Berichte und Auswertungen