Merhaba; Compliments from NL
Occupational Health and Safety in Greenhouses

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Key Messages

- In Greenhouses ‘plant comfort’ should trigger ‘worker’s comfort’

- There are many Good Practices in Occupational Health and Safety in Greenhouse workers in health surveillance, prevention, collaboration research and education

- Let us combat Bad Practices like labour exploitation and bad working conditions for migrant workers in Greenhouses

- Health care workers in rural areas can play a key role in recognition and prevention of work-related diseases in greenhouse workers
Greenhouse work; specific risks

- **Characteristic**: special microcosmos with enclosed conditions: higher exposure to plant materials, plant pests and plant protection products compared with outside horticulture workers.

- **Health effects**: irritancy, asthma, allergic alveolitis and dermatitis + pesticide illness

- + musculoskeletal disorders due to repetitive work in harvesting and packing, pushing and pulling, heavy loads.

- **Wide differences in working conditions**: be very cautious to extrapolate data from one country, crop or time to another

Different types of greenhouses
Greenhouse technology
The Netherlands/ Turkey

- The Netherlands: 41,526 km²
- 16.8 million inhabitants, (408/km²)

- Turkey: 783,356 km²
- 79.51 million inhabitants (102/km²)

4.1 million cows
20 million pigs
99 million chicken
Agriculture in The Netherlands, some facts and figures

- Efficient and sustainable production systems and processes, resulting in a productivity that is five times higher than the European average.
- 10,000 ha greenhouses
Weather Conditions NL-Turkey
<table>
<thead>
<tr>
<th>Country</th>
<th>Transplanting</th>
<th>Start harvest</th>
<th>End harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>december</td>
<td>april</td>
<td>november</td>
</tr>
<tr>
<td>Turkey</td>
<td>september</td>
<td>november</td>
<td>june</td>
</tr>
</tbody>
</table>
Good Agricultural Practices

- GAP Core Subjects
  - Subjects Related to Farm Administration and Sales Management
  - Subjects Related to Food Safety and Quality Improvement
  - Subjects Related to Workers Safety
  - Subjects Related to Environmental Conservation
Good Agricultural Practices for greenhouse vegetable crops

Principles for Mediterranean climate areas
Good practices OHS in Greenhouse Workers

- **In occupational health surveillance**
  - The Mersin Greenhouse workers study
  - In-depth study of allergy in pollination workers
- **In prevention**
  - ILO Ergonomic Checkpoints
  - Humble bees to reduce pollen exposure
  - Development of allergy free plant variety
- **In cooperation (Poldermodel)**
  - Study clubs
  - OHS organization STIGAS
- **In Research and Education**
  - Agricultural Research & Education
  - Basic Occupational Health in Agriculture course
The Mersin Greenhouse Workers Study

- Official figures from compensation system: small numbers

<table>
<thead>
<tr>
<th></th>
<th># cases</th>
<th>% work-related*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>167</td>
<td>50,1</td>
</tr>
<tr>
<td>Respiratory system</td>
<td>120</td>
<td>50,9</td>
</tr>
<tr>
<td>Musculoskeletal Disorders</td>
<td>268</td>
<td>45,7</td>
</tr>
<tr>
<td></td>
<td>555</td>
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</tbody>
</table>

- * positive on questions concerning temporality, specificity, reversibility
- More detailed case investigation and exposure measurements are planned for targeted prevention actions
The Mersin Greenhouse Workers Study: Work-related Skin, Respiratory, and Musculoskeletal Diseases

Allergic problems in pollination workers

Seed firm: development of vegetables and flowers: hand pollination

34 of 41 workers with health complaints: dermatitis and rhinitis/ conjunctivitis

Occupational history + skin patch and skin prick testing:

• EU baseline series
• Top 8 pesticides
• Specific plants/ pollen

Results:

• 12 positive on Primula Obconica
• 8 positive on Brassica pollen
• 5 positive on Ageratum pollen
• Pesticides negative
Humble bee buzz pollination

Use of vibration tools or:
Humble bees substantial reduction of pollen in greenhouse air
Ergonomic solutions
Ergonomic Checkpoints in Agriculture

Second Edition

ERGONOMIC CHECKPOINTS IN AGRICULTURE

Prepared by the International Labour Office in collaboration with the International Ergonomics Association

Make the surface of transport routes even, not slippery, and without obstacles.

Do you propose action?

☐ NO  ☑ YES  ☐ PRIORITY

Raise at next meeting

WHY
Transport within the enterprise is an important part of day-to-day work. The smooth flow of transport from the storage area to worksites, and between workstations, is a prerequisite for a productive workplace.

Ergonomic Checkpoints app
Available for free for iOS and Android
Prevention of primine allergy by breeding new variety
Typical NL: land under sea-level (polder)
Typical NL: water management
Deltaplan: investment next 30 years 20 billion Euro’s
Good Practices in cooperation

- Study clubs

- OHS Organization STIGAS
  - Information; YouTube films
  - Courses
  - Advice: Risk Inventarisation

- Collective Auctions; export strategy
Research in horticulture

Research & Development by Dutch seed producers

New variety, resistant against mildew, Cladosporium

‘Tugba’, especially for the Turkish market

Agriculture University & Research Wageningen


Design of a Sustainable Innovation Greenhouse system for Turkey
Agricultural Education in OHS

- **Basic Occupational Health in Agriculture,**
  - a concise Course for Primary health care Practitioners, developed by LDOH with teaching materials
  - Good Practice: Australia (blended learning)

- **Safe work with pesticides**
  - Certification
  - Integrated pest management
  - Education of the supply chain
A working group of LDOH is developing a three days course for Primary Health Care.

Basic Occupational Health Care in Agriculture

Course
BASIC OCCUPATIONAL HEALTH CARE IN AGRICULTURE

XXX National Institute
In collaboration with LDOH, The Netherlands
Safe work with pesticides

- Authorisation of Plant Protecting Products
  - National and EU-level (specific circumstances in different areas)
  - Prescription of formulation (fluid, granule, powder)
- Education and training
  - Certificate of competence; licence to use
- Technology
  - Automatization of spraying in greenhouses
- Protection
  - Personal protection, re-entry times
- Control
  - Strict inspections, enforcement,
  - Residue control (market correction)
Bad Practices?

Flexibilisation of labour relations and the (lack of) stricter legal regulation

Labour exploitation and unacceptable working conditions for migrant workers in the Netherlands

"Sneller, sneller, sneller,' and 'faster, faster, faster,' that is my entire Dutch and English vocabulary", said one of the interviewed workers.

"The owner of the greenhouse where I was employed introduced a competition "He put a list with the names of all workers on the wall. They were ranked in phases according to their productivity. When someone was in the orange phase for a couple of days he would be fired."
Good Practices OK; how about bad practices?

- Greenhouse technology towards environmentally sustainable production systems. Integrated Pest Management, Net Zero Energy
- But:
  - Monocultures
  - Transportation
  - Working conditions; exploitation of migrant workers

Local-4-local:
- International trend with demand for locally produced food
- Consumer perception: fresher, more sustainable, encourage local / national economy
- Dutch greenhouse vegetable sector major exporter: exports under pressure?
- How to deal?
  - Does the sector have to produce in other countries?
  - Do growers have to start a professional L4L production unit abroad?
Conclusion, Discussion

**Good Practices:**

- In occupational health surveillance
  - Mersin Greenhouse workers study
- In prevention
  - ILO Ergonomic Checkpoints
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  - Development of allergic free plant varieties
- In cooperation (Poldermodel)
  - Study clubs
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- In Research and Education
  - Agricultural Research & Education
  - Basic Occupational Health in Agriculture course

**Bad Practices:** migrant workers, repetitive work, heavy loads, pesticide use (re-entry times)
Thanks for your Attention

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