

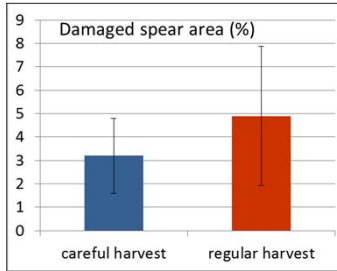
# P 08

## Critical points during post-harvest handling



White asparagus (*Asparagus officinalis* L.) is economically the most important vegetable commodity in Germany. It is a high value product and quality standards and expectations are high. Harvest and post-harvest handling is labour intensive and sophisticated technology is involved. Economic results can easily be endangered by weak points in the post-harvest chain by improper handling or mistakes. Therefore we analysed various steps like harvest-techniques, transportation, cleaning and sorting as well as cooling, packaging and storage. We identified several weak points during each of the links, mostly regarding tissue damage, discolouration and wilting.

### Harvesting



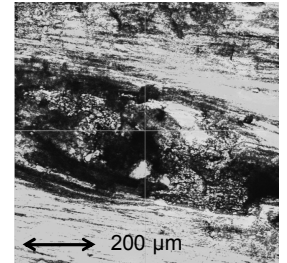
Dirt and damage after gripping with fingers

Thumb pressure damages tissue

### High pressure (> 2 bar) in overfilled boxes

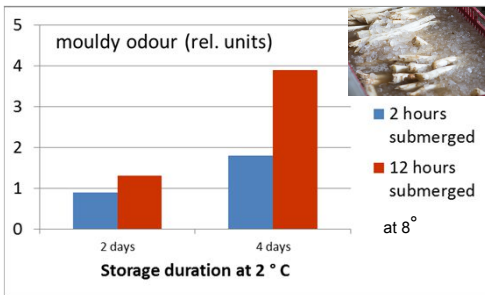


Indentations of particles after handling of overfilled boxes



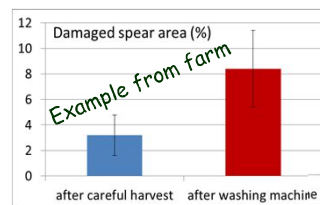
Sand particles in damaged surface crack

### Short term storage by submerging in cold water

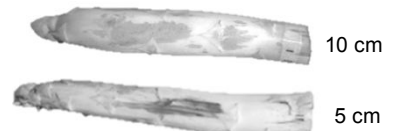
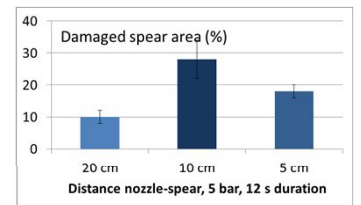


Longer period causes mouldy odour of the spears

### Washing with improperly adjusted water pressure



Water pressure should typically be well below 3 bar

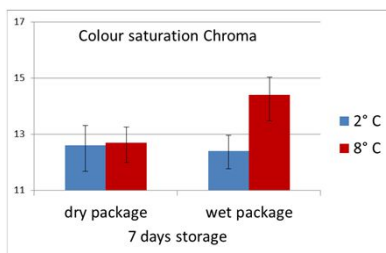


At low distance less damaged area but worse damage

### Moist storage may lead to browning

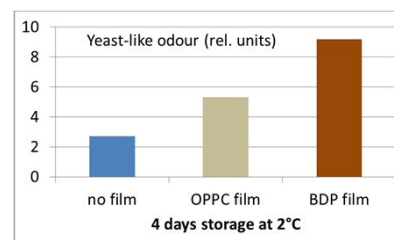


Spear cortex 100x



Wet (liquid water) leads at elevated temperatures to increased browning (higher Chroma)

### Danger for fresh odour or flavour from low oxygen/high CO<sub>2</sub>



OPPC film package – intermediate gas exchange through perforation



Gastightness BDP >> OPPC may lead to anoxia