



## Green Beans – brown discoloration

In GreenCHAINge an innovative 'smart chain' is being developed. Overall goal is to improve the intrinsic quality of the produce on the shelf.

### Objective

Green beans are an important crop on the retail shelf. One of the main quality issues is brown discoloration during the post-harvest phase. The objective is to test what the causes are for this discoloration: 1) contact with free water, 2) low temperature and 3) microbial decay.

### Results

Contact with free water does not increase the amount of brown discoloration, in fact the amount is lower. On the downside the beans that had been in contact with free water (washing or condensation) were limp (loss of firmness).

Low temperature did not increase the amount of brown beans. The beans stored at 18°C had most brown discoloration.

Microbial decay is not causing brown discoloration, since treating the beans with chlorine (not allowed in practise) had no effect.

The two used cultivars show a clear difference in amount of discoloration.

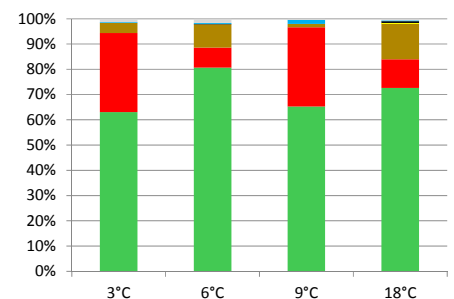
### Conclusion

For prevention of brown discoloration the beans should be cooled below 9°C. Another measure could be to wash the beans, but the beans become more limp. Discoloration is partly cultivar dependent.

### Relevant for industry

Keep the beans cooled throughout the entire chain until moment of purchase to minimise brown discoloration in beans.

*"Maintaining temperatures below 9°C keeps green beans green"*



Defect distribution in green beans for 4 storage temperatures: ■ intact beans, ■ limp beans, ■ brown beans, ■ small, ■ rot.

For detailed information about this project result please visit [www.wur.eu/greenchainge](http://www.wur.eu/greenchainge).





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