

Green Coffee Transport Trials

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SUMMARY

Several tests have been carried out to assess whether conditions favourable for mould growth and mycotoxin production might be encountered during the transportation of green coffee. Containers were equipped with probes to collect data on temperature and relative humidity.

The first trial was designed to assess the evolution of these parameters in the container headspace and within the coffee bags upon arrival in a North European harbour. Several periods of condensation were recorded in the headspace against the roof. Besides the condensation periods, long periods with a relative humidity above 85% have been recorded against the roof. This trial has given us a typical example of how condensation could damage green coffee beans at the top of the containers due to dramatic a_w increases.

The second trial allowed the evaluation of the risks of damage during the different stages of a shipment in an open liner. During the first leg of ground transport between the green coffee producing area and the port of embarkation there was a significant risk of damage due to dramatic temperature and relative humidity increases at the top of the bags. One short period of condensation was reached. No critical relative humidity was reached during the second leg of transport on the boat between the port of embarkation and a North European harbour.

A third trial was carried out with similar objectives to the second one but with coffee in bulk in a closed liner. Three different periods were evident during this trial: ground transport, with extreme conditions but without condensation, boat transport, with very stable conditions especially for the probe placed in the coffee and the storage period in the North European harbour with only small variations observed due to the summer conditions.

These three trials demonstrated that the most critical phases of the transport are the overland transport between the green coffee production site and the port of expedition and the storage period in a European harbour during the winter period. Some extreme conditions resulted in condensation of water on the coffee, increasing the risks of mould development. On the contrary, only slow and relatively small variations were observed during the sea transport phase in a closed container.