Abstract:

Short-term high CO2 treatments were evaluated for suppression of postharvest decay of pears in combination with biological control treatments. Storage of ‘Bosc’ and ‘d’Anjou’ pears in 12 or 20% CO2 with 5% O2 for 2-6 weeks prior to longer-term storage in regular air or standard controlled atmosphere reduced decay by Botrytis cinerea. Decay control improved with increasing duration of exposure to elevated CO2. High CO2 storage combined with postharvest biocontrol treatments showed additive beneficial effects. Decay caused by Penicillium expansum was not controlled by elevated CO2 storage, but was suppressed by biocontrol agents. No injury from exposure to 20% CO2 was observed when pears were harvested early in the maturity range (71 N). Injury was observed in pears harvested at 62 N. Injury increased with duration of exposure and with delay of high CO2 treatment. Calcium enrichment by orchard CaCl2 sprays and post-high CO2 atmosphere did not affect incidence of CO2 injury.