

# ICELESS BROCCOLI

Advanced Modified Atmosphere/  
Modified Humidity Packaging Solutions for  
Shelf-Life Extension



Major quality issues associated with prolonged storage of broccoli include weight loss and shriveling, dehydration, yellowing, and microbial decay.

**Xtend** packaging solutions help overcome these issues and preserve quality and extend shelf life of broccoli by creating a favorable composition of oxygen and carbon dioxide inside the closed packaging that slows down post-harvest deterioration and weight loss.

Traditionally, in many countries, broccoli is packed in ice to preserve its quality during the supply chain.

**Xtend** packaging totally eliminates the need for ice and means much leaner and greener handling and transportation: ■ No need for waxed cartons or Styrofoam boxes ■ More broccoli can be packed in the same container space ■ No messy melting ice and associated food safety issues ■ More cost-effective solution ■ Solutions suitable for field packing are available

- ✓ Slows aging
- ✓ Minimizes dehydration and weight loss
- ✓ Minimizes yellowing
- ✓ Minimizes shriveling
- ✓ Maintains firmness
- ✓ Reduces risk of microbial decay
- ✓ Enhances food safety
- ✓ Helps preserve Vitamin C content



**PROLONG**  
freshness and  
extend shelf-life



**EXTEND**  
your market  
reach



**REDUCE**  
supply chain  
waste



**ENHANCE**  
consumer  
experience



# Taking Broccoli Packaging Out Of The Ice Age

## The challenge

Eliminate the need for ice and nonrecyclable waxed cartons/Styrofoam whilst maintaining quality and extend shelf life during prolonged storage and transport.

## The solution

Implement StePacPPC’s recommendations for proper postharvest handling of broccoli:

- ✓ Proper harvesting techniques to ensure clean, aesthetic cut that will help reduce risk of microbial decay
- ✓ Prompt cooling followed by good cold chain management during the supply chain

## THE RESULTS

StePacPPC iceless broccoli packaging is a game-changer for growers and shippers. It ensures freshness and vibrant florets, extends shelf life, and enables safer handling. No more messy melting ice!

In addition, the elimination of ice & waxed cartons/Styrofoam reduces freight costs per unit weight broccoli since as much as 30% more broccoli can be packed in the same container space.

Research also shows that the use of Xtend instead of ice reduces CO<sub>2</sub> emissions.

### Broccoli shipment from Salinas Valley to New York:

	Xtend <sup>®</sup> Iceless Carton Liner (Optimal O <sub>2</sub> , CO <sub>2</sub> & Relative Humidity)	Waxed cartons/Styrofoam (Packed in Ice)
Capacity per haulage	28 pallets of 64 cartons	20 pallet of 64 cartons
CO <sub>2</sub> emissions	215 kg/ton	359 Kg/ton
CO <sub>2</sub> emission saved	<b>144Kg/ton (40 %)</b>	

Adapted from Westra, E.H. and Eppink, M.M. (2008). Positive impact of plastic packaging on CO<sub>2</sub> emissions. Wageningen UR, Agrotechnology and Food Science Group.



Reduced weight loss



Reduced risk of microbial decay



Slows down shriveling and yellowing



Eliminates the need for messy ice



Recyclable



Reduce carbon footprint

All products are available for a range of weights in customizable sizes

