

# EFFECT OF 1-MCP PREHARVEST TREATMENT ON APPLE QUALITY CHARACTERISTICS AT HARVEST TIME AND DURING STORAGE

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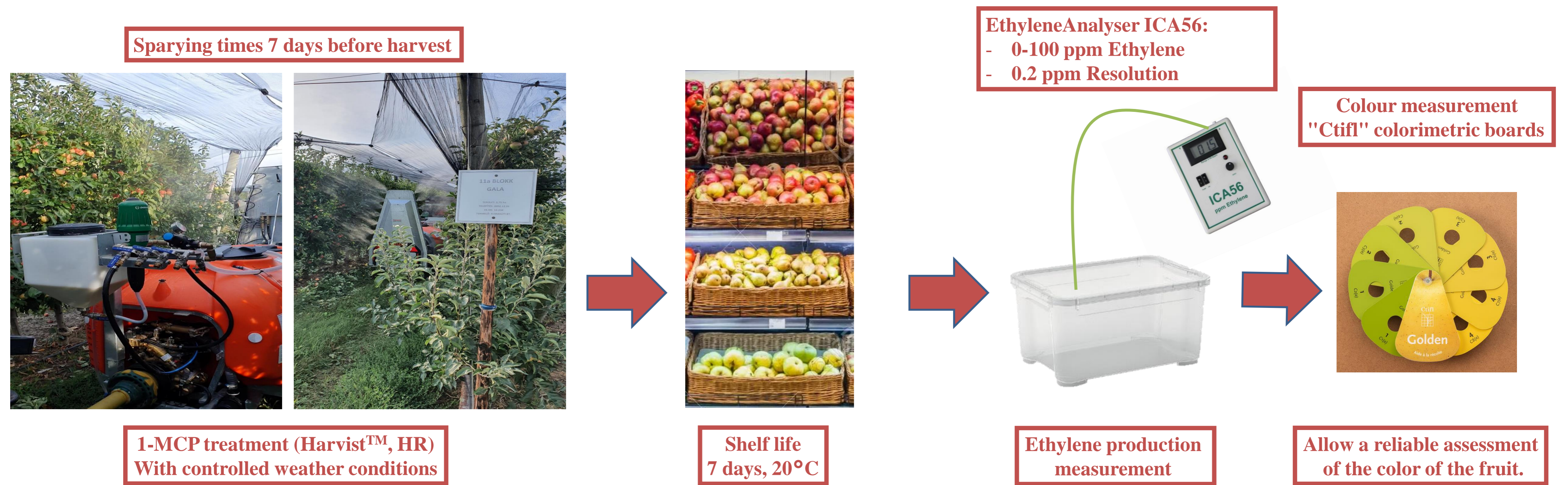


## INTRODUCTION:

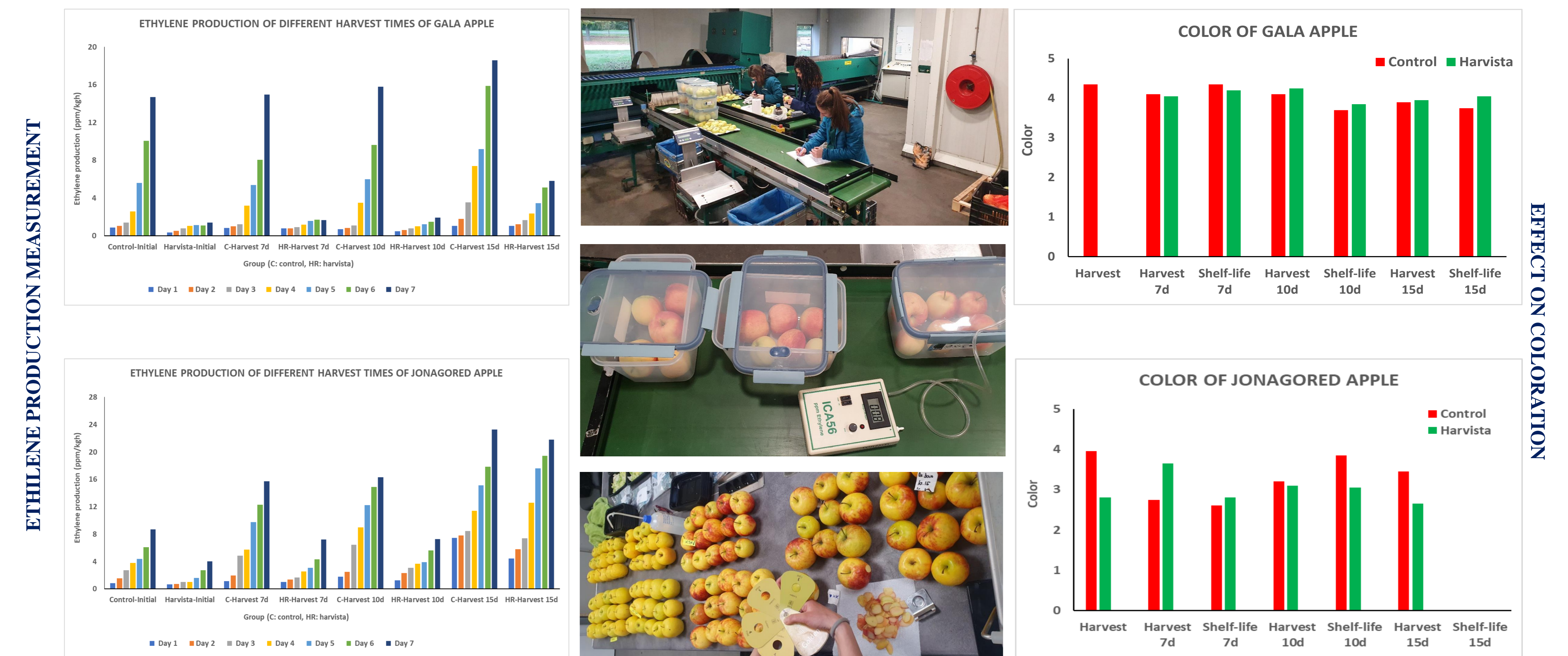
Fresh apple is one of the most important fruit in the world. Apple growers encounter more and more challenges during their work. The difficulties of harvesting became a task to be solved in general. The final stage in the development of horticultural products is ripening, which is a quality change driven by complex biochemical processes (Papp, 2003). The target is to get the best quality and biggest harvest out of orchard. To reach that we need to gain more control over how and when our fruit ripens. Same time the expansion of the harvest window for optimal color, size and firmness is also a key to success for the producers. (avoiding fruit drop). In the case of climacteric species such as apple the ethylene plays a key role in initiating and accelerating ripening-related processes perceiving as various qualitative changes (e.g. colour, hardness and refraction). The ripening inhibitory effect of 1-methylcyclopropene (1-MCP) according to Holcroft (2010), is due to the fact, that 1-MCP, because of its structure similar to ethylene, binds to the ethylene receptors of agricultural products during treatment, displacing ethylene from them and preventing its ripening promoting effect. Pre-harvest, on-plant 1-MCP treatment is a relatively new technology, whereby we treat apples in the orchard that have reached physiological maturity but have not yet fully matured and developed colour.

The goal of our experiment is to examine, how does Harvista™ /HR/ (1-MCP) treatment affect the colour and ethilene production, fruit hardness of apples during 6 month of refrigerated storage followed by 7 days of shelf-life storage.

## MATERIALS AND METHODS



## RESULTS



## CONCLUSIONS

We found that the Harvista™ treatment inhibits pre-ripening of Gala, and Jonagored apples. Significant differences were found in the postharvest ethilene production of samples treated with 1-MCP 7 days before harvest. Based on the colorimetric results, the 1-MCP treatment was found to be the most effective on the Jonagored apples it is helped to keep the green color for a longer period.

## REFERENCES:

HOLCROFT D. (2009): SmartFresh™ and EthylBloc™ technology: Tools to control ripening and senescence. Agrofresh Inc.  
 PAPP J. (2003): Gyümölcsstermesztési alapismeretek, 7. chapter - Gyümölcsfejlődés és érés. Mezőgazda Publishing, pg. 184-189.