Floralife®
The Care and Handling Experts™

Research Update

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Preventing Ethylene Damage in Orchids with the Use of EthylBloc™ Technology Sachet

Research Background

Orchids are continuing to grow in popularity as cut flowers as well as potted plants. Due to the high value of this crop, maintaining the quality of the flowers and increasing the shelf life are of utmost importance for both producers and consumers. A major postharvest problem of orchids is their sensitivity to ethylene, a natural plant hormone that occurs as a gas in the atmosphere. Ethylene is effective at very low concentrations (parts per billion) and causes major quality deterioration and death of many types of flowers. Plants respond to ethylene from external sources (e.g. propane heaters, engine exhaust, gas-powered forklifts, and smoke) as well as ethylene generated by them (internal ethylene). There is high probability for plants to be exposed to these damaging levels of ethylene especially during shipping, in distribution centers and in retail stores. In orchids, ethylene can cause bud drop, petal wilting and discoloration, or flower drop (depending on the type of orchid and variety).

EthylBloc™ technology is an EPA-registered ethylene action inhibitor which protects plants from both external and internal ethylene. The EthylBloc™ sachet is a convenient application method of this technology. Sachets are placed inside shipping boxes so plants receive the treatment during shipping and acquire the protection against ethylene.

Control – No EthylBloc™ Sachet Treatment – Day 5

Research

The following photographs illustrate the results of an experiment conducted at Floralife, Inc. Laboratory to investigate the effectiveness of EthylBloc™ sachet treatments on Phalaenopsis orchids. Two EthylBloc™ sachets were placed in closed corrugated boxes (2.85 cu. ft. in volume) containing pots of white Phalaenopsis sp. (variety unknown) and held for 2 days at room temperature to simulate a shipping environment. Control plants were held under the same

EthylBloc™ Sachet Treatment – Day 5

EthylBloc technology is a trademark of AgroFresh Inc.

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conditions without the use of EthylBloc™ sachets. At the end of the shipping environmental simulation phase, all plants were then exposed to 1 ppm of ethylene for 16 hours.

Results

Ethylene caused Phalaenopsis plants to drop small flower buds. Flowers that remained on the stems wilted fast and became transparent. EthylBloc™ sachet treatment protected plants from these damages. Flowers in the EthylBloc™ Technology treated plants remained vibrant and healthy for 2 months at which point the experiment was terminated, whereas the control flowers (no EthylBloc™ sachets) lasted less than 5 days.

Conclusions

The EthylBloc™ sachet treatment significantly protected the Phalaenopsis orchids tested in this experiment against ethylene damage.

Control – No EthylBloc™ Sachet Treatment – Day 5

EthylBloc™ Sachet Treatment – Day 5

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