

Research: Cucumbers (*Cucumis sativus* L.)

Cucumber is originally from India but now its widely grown in Europe, China, USA, Mexico and Australia also. Mexico is one of the largest exporters of cucumbers to USA, Canada and Europe. It is grown in different ways such as open fields, shaded or net houses and hydroponic systems also for commercial production.



Nutrient Requirements

Nutrient requirements vary as per the yield targets and growing methods. Under normal soil growing conditions, the requirement of Nitrogen, phosphorous and potassium are the major nutrients followed by calcium, magnesium and iron. It is recommended to have a soil test to determine the nutrient requirements. Nutrient requirements are high in greenhouse and hydroponic systems due to longer growing period. However, enough care should be taken not to feed the plants with excessive amounts of nutrients to avoid toxicity levels in fruits.

Trial Data and Technical Information

Best Environmental Technologies conducted the research trials in Mexico under shaded green houses/net house conditions to test the efficacy of Best Farming System (Best) on fruit yield, quality and shelf life. Study was conducted in shaded house with 855 m² area in coconut fiber growing medium bags. Before seeding, cucumber seeds (cv Paradise) were sprayed with Best seed product and seeded in bags. Other Best products are sprayed on crop at one-month interval for next 4 months.

Best-treated plants were ready for 1st picking 4-5 days before than nontreated crop. Trials data showed that Best Products plus only ½ the amount of fertilizers increased yield of commercial quality fruit by 20%. After 17 pickings, commercial value size cucumbers yield was 92% of the total produce in Best + ½ fertilizers treated crop as compared to 77% for without Best.



In Best organic products treated crop the commercial grade yield was 84% of the total yield. The interval between the pickings was also reduced to 3 to 4 days in treated crop from 4-5 days in non-treated crops. Small and deformity fruits number in total crop harvest was lowest in Best-treated over nontreated crops.

Fruit Quality

Weight Loss

Best-treated cucumbers did not lose weight for 8 days, whereas control fruits started losing weight from 4 days onwards.

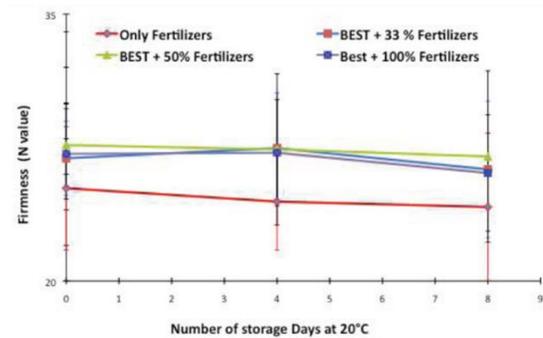
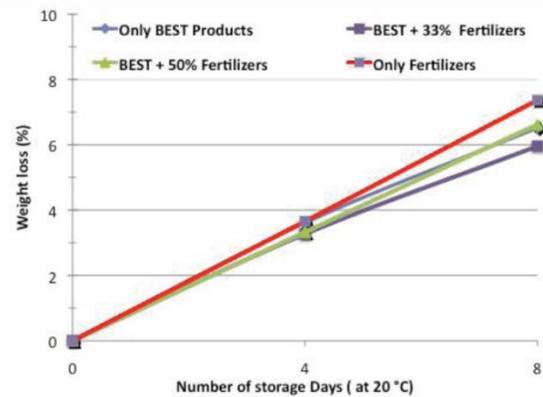
Total Soluble Salts

Cucumbers from Best products treated crops showed higher value (4.2) compared to nontreated crop fruits at 3.8 after 8 days of storage at 20°C and 80% relative humidity.

Firmness of Fruit

Firmness for Best-treated fruits was 28 N as compared to 25 for non-treated crop fruits. After 8 days of storage, cucumbers from Best-treated crop showed very less reduction in N value compared to untreated crop fruits. The value further dropped to 24N for non-treated cucumbers.

BEST-treated crops with 1/3rd of fertilizer applications gave better growth and maximum yield over recommended fertilizers applied crop.



Scale for size grading as per cucumber export guidelines.

Size grading was done through USDA, 1997 method.