

# Hybrids and crop protection in greenhouse cucumber production

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Syngenta is one of the few companies on the market that offers Bulgarian growers a comprehensive package that includes vegetable seeds and plant protection products for the production of greenhouse cucumbers.

Long-fruited cucumbers are one of the traditionally grown crops in Bulgaria. Greenhouse cucumber production is a fast-returning and profitable business for Bulgarian growers. The main prerequisites for good results at the end of the season are: the precise choice of hybrid, the correct technology, optimal fertilization and, of course, plant protection. In Bulgaria, Syngenta offers the following long-fruited cucumber hybrids: Tribuno, Bomber, Palermo and Vigorex. These four hybrids are positioned for the different production periods in Bulgaria and have different requirements regarding the growing conditions.

**Tribuno F1** is a plastic hybrid suitable for spring and summer production in glass and polyethylene greenhouses. Tribuno is characterized by a vigorous and open habitus. The plant has an excellent vegetative-generative balance. The high yield of the hybrid is due to the rapid transition to fruiting from the lateral shoots. The fruits are dark green, ribbed, with an attractive gloss. The cucumbers are 30–34 cm long and do not form a neck. Resistances: IR = PM, CYSDV.

**Palermo F1** is another hybrid recommended for early production in winter, spring and autumn in glass and polyethylene greenhouses. It is characterized by a concentrated high yield at the beginning of the vegetation, when the product price is higher. The open habitus of the plant allows easy exposure to sunlight and, accordingly, more intensive fruit growth. The open leaf mass allows a slightly denser planting scheme. The fruits are dark green, ribbed, without neck and 30–34 cm long. The hybrid is tolerant to low temperatures and better withstands temperature amplitudes at the beginning of the season. Palermo is highly tolerant to powdery mildew and moderately tolerant to downy mildew. Resistances: HR = PBF, PM, CL, CO, COLD-8; IR = DM.

**Bomber F1** is the hybrid with the highest quality of the final product. This advantage is very important for wholesalers and retail chains. We recommend this hybrid for production in spring and late summer. The plant is characterized by a strong root system and large leaves. Due to its high tolerance to three viruses and powdery mildew, Bomber has a long harvesting period. The fruits are without neck, ribbed, with dark green coloration and gloss. The hybrid performs equally well in hydroponics and in soil, and is easy to harvest and grade. The fruits retain their attractive commercial appearance for a long time. Resistances: HR = Cca, Ccu, CVYV; IR = CMV, CYSDV.

**Vigorex F1** is a hybrid suitable for cultivation in late spring and summer. It is distinguished by high tolerance to stress at high temperatures. The plants develop equally well when grown in glass and polyethylene greenhouses. In addition to stress from high temperatures, Vigorex also withstands cultivation on heavy and saline soils. As a result of its aggressive root system, the plant absorbs nutrients very well even under more extensive conditions. The fruits are ribbed, without neck, 31–35 cm long. The cucumbers retain their dark green color for a long time after picking.

Resistances: HR = Cca, Ccu; IR = Px.

**Plant protection:** The comprehensive package for growers is complemented by reliable plant protection products for controlling the main diseases in cucumbers. Against downy mildew we recommend the systemic fungicide **Ridomil Gold MZ**, and against powdery mildew our recommendation is the new fungicide **Ortiva Top**. For simultaneous control of downy and powdery mildew, the broad-spectrum fungicide **Quadris** is used. Last but not least, in 2016 the sale of the newest fungicide – **Cidely Top** – was launched; it is currently the only fungicide in cucumbers registered against 5 major diseases.

**Cidely Top** controls powdery mildew, Alternaria, black stem rot, scab and anthracnose. When symptoms of the disease appear, two applications can be made at 10-day intervals. The

application rate is 100 ml/ha, and the pre-harvest interval is 3 days. Among insecticides, we recommend **Actara**, which, through its systemic action, effectively controls aphids. **Vertimec** is a broad-spectrum insecto-acaricide that acts against leaf miners and the common spider mite.