

Technological Advice for the Intensive Production of Rijk Zwaan Gherkin Varieties

Rijk Zwaan gherkin varieties are playing a leading role on the European market. This is brought about by the fact that our varieties can absolutely fulfil demands of producers and purchasers as well as consumers.

With this short summary we would like to give a helping hand for your more successful production.

Advantages of growing Rijk Zwaan varieties:

- our wide range can provide you special outstanding varieties for any production purpose
- very high yields will lead to greater income
- outstanding quality, regular fruit shape and good consistency make possible high quality export production
- the safety of the production is assured by the good regeneration potential of RZ varieties
- the open plant habit makes possible the harvest at the desired fruit sizes.

Rijk Zwaan varieties are accepted and contracted by the exporters and the purchasers while other varieties are rejected due to their unfavourable fruit shape and weak canned quality. These varieties are refused by the high level markets.

Sowing and planting

Due to the cheap plant growing methods gherkin planting is carried out at wider scale in the last times in the contrary of direct sowing. The risk of poor germination (cold and rainy weather, sometimes light frost can occur any time in May) can be avoided with minimal extra costs. Plants' price of the Grow Group is less than the price of two seeds.

Direct Sowing

Use a good weather period (due to the forecasts) for direct sowing. Before sowing it is always necessary to use soil insecticides such as Counter, Basudin or Galition. First make a shallow seedbed (3-5 cm) and keep it wet! Sow the seed on the wet soil and cover with a thin soil layer! In case of drying out the soil must be irrigated again.

Planting Plants

When planting, the upper surface of the peat block must be on the same level as the top of the soil and fresh soil parts mustn't get close to the stem - to avoid plant rot diseases.

If it is not possible to plant when receiving the gherkin plants, keep the trays in a sunny place.

For the successful growing of Rijk Zwaan varieties the optimal plant distance is 20-22 cm for single rows and 25-27 cm in case of double (twin) rows. Row distance can be

100-130 cm. At these distances the varieties will not become too dense, but maximal yield can be expected due to the higher amount of main shoots.

Cutting of the Rijk Zwaan Gherkin Varieties

The purpose of the cutting of the gherkin plants is to build up a strong main shoot together with a good side shoot system which makes it possible to achieve higher yields. If the plant is overcharged in the early period of the growing, namely the shoots and fruits are not removed up to the necessary height there would be a better early harvest however, when averaged over the whole season, the yield would definitely be lower.

Technical method of the pruning => Especially important for **Wire Cultivation**

- * Up to 35-40 cm plant height remove all the small fruits and side shoots only the leaves remain on the plant
- * Above 35-40 cm the fruits can remain on the plant but the developing sideshoots must be removed
- * From 55-60 cm height the side shoots must only be cut off after the second leaf
- * From 80-90 cm it is sufficient to remove the sideshoots after the 3rd-4th leaves
- * If the plant is well trained, above 110-120 cm Rijk Zwaan varieties do not need further pruning, and the gherkin plant will be manageable for the whole season.

NOTE: We draw your attention to the fact that this pruning method is insufficient in case of other varieties and can lead to poor side shoot production and too dense plant habit.

Irrigation, Fertilization and Plant Protection

Fertilization is one of the most important determining factors of the intensive gherkin production. If the amount of nutrients is insufficient, yields and income will be lower, moreover the plants that have a weakened condition are more susceptible to diseases.

If the plants are wastefully over-fertilized, the costs will quickly increase and the income of the season will stay below the expectations. The too concentrated soil solution may cause the burning down of the capillary roots and the plant is not be able to take up the nutrients from the soil.

During the intensive plant nutrition we must provide in the upper 20-25 cm soil layer (in the soil solution) the necessary nutrient concentration and proportion, according to the growing stage of the gherkin plant.

To achieve this goal water amounts should be divided in as many segments as possible, during the summer period it is reasonable to give the necessary water amount (5-6 l/running meter) in 4-5 parts, if possible during the morning, until 14-15 o'clock. After this time water uptake of the plant is less efficient.

Fertigation & Plant Protection

(The most common diseases and pests)

Fertigation manual for Rijk Zwaan varieties - step by step

Generally 1000 litres of irrigating water should contain 1,0-1,2 kg fertilizer with a proportion of the nutrients that is suitable for the growing period of the plant.

Several types (brands) of fertilizers are appropriate for using in the gherkin production, however the most important factor is the correct ratio of the nutrients.

Phase 1

(After planting, for 2-3 weeks) until ca. 10 June

Fertigation twice a week with phosphorus predominant fertilizer (Ferticare S from Kemira), 1 litre/running meter/occasion

Phase 2 (the following 3 weeks, until ca. end of June)

Active substance of nitrogen and potassium should be equal! (N:K=1:1)

E.g. Ferticare I 0,75 kg + Ammonnitrate 0,25 kg + Magnesium sulphate/ nitrate 0,1 kg/m³ water. Add only calcium nitrate once a week. 1-1,5 l nutrient solution/r.m./day

Phase 3 (the coming 3-4 weeks, until ca. 15-20 July) N:K=1,3-1,5 :1

E.g. 0,6 kg Ferticare I. + 0,35 kg Ammonnitrate + 0,1 kg bitter salt (MgSO₄)/m³ of water, once a week calcium nitrate ; 2,5-4 l nutrient solution/ r.m./day

Phase 4 (the following 4 weeks until the middle of August)

This is the period of high yields!

N:K = 1,5-2,0 : 1

E.g.: 0,6 kg Ferticare I. + 0,6 kg Ammonnitrate + 0,2 kg bitter salt/m³ water. Twice a week calcium nitrate. 4-6 l nutrient solution/r.m./day

Phase 5 (2-3 weeks, by the end of August)

N:K= 1:1,2

E.g.: 0,2kg Ferticare I + 0,4kg Ammonnitrate + 0,2kg potassium nitrate + 0,1kg Bitter salt/ m³ water, once a week calcium nitrate; 2-4 l nutrient solution/r.m./day

Phase 6 (until the end of the season)

Add only nitrogen and water, e.g. 1 kg ammonnitrate/m³ 1-2 l solution/r.m./day

IMPORTANT!

The above dosages and nutrient ratios are recommendations and are suitable at average conditions. According to the plant growing and health status, amounts of yields, soil and climate conditions it may be necessary to use different amounts and proportions during fertigation.

The Most Common Diseases and Pests

Viruses

Leaves become marmorously mottled, curl downwards, become wrinkled and reduced in size. Infected fruits are bumpy, mottled and malformed. These diseases can only be prevented by an intensive control of the transmitters (aphids, thrips) and the spraying of light oils (Vektafid, Bio-Film) to prevent the insects in the spread of the viruses. Rijk Zwaan varieties are tolerant against CMV, to control other viruses our varieties get heat treatment.

Angular leaf spot (*Pseudomonas syringae* pv. *lachrymans*)

Small yellow-brown (3-5 mm) angular spots appear on the leaves, the under surface is shiny green, later dries towards brown and finally the center of the spots fall out and the leaf appears perforated.

Control: bactericide (Kasugamicin) and copper fungicides (Champion, Cuproxate) and the infected leaves should be removed.

Downy mildew (*Pseudoperonospora cubensis*)

The leaves become mottled by 5-8 mm angular yellow spots which never fall out of the leaf. On the under surface of the spots downy grey coverage develops. For the infection at least 4 hours of moisture of the leaves is necessary and temperatures should be at least 16-17 °C. Symptoms appear 4-5 days after the infection. To control this disease the use of contact (Bravo, Champion, Orthophaltan) and systemic (Aliette, Curzate, Acrobat, Previcur, Mikal) fungicides is necessary. It is important to use the systemic materials in blocks (2-3 treatments) for a proper control.

Spinning mites

1-1,5 mm white-silver spots appear on the leaves, often confused with micro elements' deficiency. On the backside of the leaf 0,3-0,8 mm small insects can be noticed near the veins. If their number increases cobweb-like coverage appears on the under surface.

To control mites it's necessary to notice the early symptoms and use acaricides (Sanmite, Danitol, Nissorun etc.). Warm and dry weather always brings about the spread of the mites.

Aphids

The leaves curl downwards, honey-dew appears and on the backside of the leaf 1-2 mm green or black aphids can be noticed.

Control: insecticides (Talstar, Chess, Karate, Actara, Sherpa)

Remember that the control of the aphids is the most important manner to avoid virus infections!

Lucerne bugs

The young shoots snap and become necrotic and a 3-4 mm insect can be detected on the plant. To control them use insecticides (Sherpa, Karate, Bi 58), and make the treatment in the early hours.