Baby plum tomato

Angelle, Dimple & Sweetelle

Cultivation manual

Angelle

Resistances: HR: ToMV:0-2, IR: M

Plant type

- Vigorous, more vegetative plant with good leaf expansion well into summer
- Fruits are attached well to the truss
- Angelle produces a high percentage of branched trusses
- Plant is short and is relatively easily managed in order to minimise labour
- High production potential due to vigorous plant type
- Crop responds well to management and is quick to recover

Fruit type

- Baby plum tomato weighing 10-12 grams with the best taste of its type; excellent balance between sweetness, acidity and flavour
- High brix value, resulting in very high sweetness
- Very firm fruit flesh which ensures a long shelf life
- Strongly resistant against cracking
- Uniform fruit shape, glossy and quick to colour further
- Fruit with a shape familiar to the consumer

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Dimple

Resistances: HR: Ff: 1-5 / Fol: 1 / ToMV: 0-2, IR: M

Plant type

- Strongly generative plant type which easily retains its leaf length in summer
- Balance between leaf and fruits is easy to manage right from the start
- Shorter plant type
- Produces quickly-branched trusses, right from the start
- High early and total production

Fruit type

- Baby plum tomato weighing 11-12 grams with a very sweet taste
- Familiar longer fruit shape with dimples around the shoulder
- Strong against cracking
- Beautiful red colour

Sweetelle

Resistances: HR: Ff: 1-5 / Fol: 1 / ToMV: 0-2, IR: M

Plant type

- More generative type in combination with sufficient strength in summer
- An open, efficient plant which is also very suitable for growing under artificial lights
- Somewhat longer plant
- High production potential due to high number of fruits per truss Produces fewer easily-branched trusses compared with Dimple or Angelle

Fruit type

- Baby plum tomato weighing 10-12 grams with a very sweet taste
- Fruit slightly more blocked than Dimple and Angelle
- Very firm fruit flesh which ensures a long shelf life
- Very high brix with an intensely fresh flavour
- Strong against cracking

Cultivation type

Angelle, Dimple and Sweetelle are varieties selected for cultivation throughout the year. This cultivation manual has been compiled for December and January planting for North-west Europe. Later sowing dates for a possibly shorter cultivation and/or other cultivation areas require a number of cultivation modifications.
All varieties we suggest to graft. We recommend a more generative rootstock for Angelle, and a more vegetative type of rootstock for Dimple and Sweetelle when grown in a newer greenhouse (more light) and/or higher CO^2 possibilities.

Planting distance and head distance towards summer

Early in the season, when light intensity is still low, high plant density will promote more vegetation in the plants, which in turn restricts the opportunity to manage the plant sufficiently generatively and early. This is determined in the main by the sowing date, and partly by the characteristics of the variety. Dimple and Sweetelle are more controlled in their leaf volume than Angelle, making Dimple and Sweetelle easier to manage generatively.
Early sowers (planting up in early December) will benefit from being planted at the closest plant distance a little later. Later planting dates (after 1 January) need to retain sufficient heads at an earlier stage, in order to be able to produce sufficient fruits in relation to the incidence of light. This allows for an ideal fruit size and controls the vigor of the head.
Initially, a density of 2 – 2.5 plants/m^2 is often used, which – depending on the greenhouse type, available heat and CO^2 – is destined to result in an ultimate distance of 4 to 5 stems per m^2 no later than week 8. Additional shoots are taken in 1 or 2 stages. However, in one stage is preferred for increased uniformity. Later planting out (from February onwards) is best done immediately at the ultimate density.
Angelle, Dimple and Sweetelle all easily produce strong and uniform shoots.
This method should ensure that we can create a strongly generatively-balanced plant with a view to achieve uniform, well-maturing fruits weighing 10 – 12 grams.

Production of heads can be recommended during the following weeks:

Flowering before 1 January	→	wk 7 – 8 shoot truss may flower
Flowering between 1 and 15 January	→	wk 6 – 7 shoot truss may flower
Flowering 2nd half of January	→	1st or 2nd head shoot (wk 5 – 6 shoot truss may flower)
Planting after 1 February	→	can be started immediately at ultimate distance.

Plant distance	Plants / m^2	1 head extra (+ 1 plant)	1 head extra (+ 2 plants)	1 head extra (+ 3 plants)
42 cm	2,98	5,96	4,47	4,96
50 cm	2,5	5	3,75	4,2
60 cm	2,08	4,16	3,12	3,47

Truss pruning and branched trusses

Angelle, Dimple and Sweetelle have the ability to produce uniform fruit size, although it is not necessary to do truss pruning. In the past, we thought it was best to encourage the plant to produce high numbers of branched clusters. However, depending on the variety, this is not always the best way of growing. More branched clusters give more fruits/m^2 but a lower fruit weight, increased labour and a more unbalanced plant in summer. These crops have a good early production but produce below the average in the 2nd half of the year.

Angelle and Dimple are varieties which produce branched trusses fairly easily. For Angelle, this is not a problem because it can produce shorter clusters and cope with it. In order to encourage the formation of branched trusses, we recommend cultivation with an increased day/night difference (lower pre-nights). Evening temperatures should not be too low if there are sufficient branched trusses but may be lowered a little if there is a shortage of branched trusses. However, be careful as two branches are perfect but three or more are too much.

Dimple produces branched clusters fairly easily in the spring. We partially try to prevent this with higher pre-nights and nights - less branched clusters give a higher fruit weight, less labour and a better plant balance in the 2nd half of the year.

Sweetelle does not produce branched trusses quite so easily but does produce longer trusses so that it also easily achieves its number of fruits/m^2. When we see the head of the plant developing branched clusters, it is better to make a flatter climate. An average of 18-20 fruits a cluster is perfect for the plant balance.

Plant cultivation

Plants are preferably managed generatively as early as during the last growing stage. When purchasing grown plants, we aim for a rapid, not too heavy plant which has already been prepared for generating. Angelle needs more attention in this respect than Dimple and Sweetelle.

As soon as the truss becomes visible in the head of the plant, introduce a day temperature up to a 5 °C higher than the night temperature, if necessary with additional increase in lighting during light-rich days or a short pipe boost during dark days, accompanied by an increased ec to an 8 in the pot.

Control and insertion in planting hole

We recommend strict control of the plant during the start of cultivation when planted out in lower light conditions. Control the plant next to the planting hole and transplant it when the first truss fully flowers (applies to Angelle). Dose with sufficiently high ec (4) and start the process of adding less nitrate but more chlorine and sulphates. Avoid watering after 1300 – 1400 hours. Should the sun break through later in the afternoon, then it will be better to replenish at night with a night dose. This saves energy and prevents the plant from becoming waterlogged, resulting in the flower quality being too vegetative. Angelle must be controlled very strictly during this stage to allow it to fully develop its 1st truss. By their nature, this is a much easier process in the case of Dimple and Sweetelle.

The dose length for 1 plant per pot is generally around 100 cc. In the case of two plants per pots, this depends to a large extent on the number of drips to a pot. The dose length in the case of a single drip for two stems varies between 100 and 150 cc per dose. A dose is more likely to measure 200 cc per pot in the case of two drips per pot. The pot weight is shown in the table below.

	10*10*6.5 pot	10*15*6.5 dual blok	10*20*6.5 dual blok
Absolute minimum weight	300	450	600
Sprinkling weight	375-400	550-600	750-800
Saturated	550	825	1100

Twenty-four hour periods must be sufficiently high in the case of light days but this does not generally pose a problem. It is at least as important to daily produce color in the plant on dark days. This can be achieved by daily generous pipe boosts between 12 noon and 1300 hours. In order to promote flower quality, we recommend introducing a pre-night towards flowering time. The pre-night must be short and intense and may fall to 13-14 degrees in order to encourage the flower quality of the 1st truss. Do not make the pre-night too long during light days, or add a lighting boost, otherwise the 24-hour temperature will decrease too much. The pre-night may be set to last a little longer during dark days, in order to retain some reserves in the plant. Pre-nights are lower for Angelle compared with Dimple and Sweetelle.

Grown-on plant during the first 6 trusses

Speeding up the production of the first trusses is necessary. Angelle is naturally a little heavier, more vegetative-growing plant amongst the baby plum types. As a result of this characteristic, we recommend cultivating at a sufficiently fast growth rate right from the start. Implementation of ample lighting increases during light-rich days is preferred, in order to render the plant sufficiently generative. We would recommend temperatures up to 27 degrees for the first trusses at light-rich days. If the plant has too much surplus during the afternoon, then it is often necessary to continue the day temperature a little longer and possibly to increase the pre-night or night temperature by 1 - 2 degrees.

We recommend an afternoon boost between 12 noon and 1300 hours during somber, dark days. This can be done by boosting the minimum pipe during the afternoon and by watering sparingly and not watering too late during the afternoon. The pre-nights may be continued a little longer and/or be intensified if the plant considers it necessary.

The 24-hour period temperature can be controlled fully via the depth and length of the pre-night. Monitor this closely so that 24-hour periods remain at an acceptable level. By this we mean a minimum of 17 degrees, but this is determined mainly by the planting date and stem distance.

A timely start with leaf picking may keep the plant more open and generatively managed. We also recommend to remove a head leaf weekly from truss 2 onwards in Angelle, in order to keep the plant sufficiently open and to have it work on its fruits. Removing head leaves may be done all the year round if warranted by too heavy growth. Often, this is stopped in May and restarted in August. There is less need to remove head leaves in the case of Dimple and Sweetelle, due to the more open nature of the plants. Pre-nights should be less for Dimple and Sweetelle, otherwise the result is too many plants with a lot of branched clusters. For Dimple and Sweetelle, we prefer a flatter climate which creates a better plant balance in the summer.

Light	No cluster	1st cluster	2nd cluster	3rd cluster	4th cluster	5th cluster
(Joules/day)	(0C)	(0C)	(0C)	(0C)	(0C)	(0C)
<100	17.8	<17.5	17.4	17	16.8	16.3
200	18	17.8	<17.5	-	-	-
300	19	18.2	17.8	-	-	-
400	19.5	18.5	-	17.8	-	-
500	20	19	-	-	17.8	-

Crop management before the summer

Angelle is a strong grower, allowing you to continue managing the plant quite well generatively during this period. If the plant is heavy in April-May, it is best to continue removing head leaves for a while and managing the plant with a large D/N difference. It is best done by maintaining the night temperature and letting the temperature increase a little more during the day. If the plant becomes more open, then you can ease off the differences a little in order to promote strength and so more strongly enter the summer. The latter applies more to non-grafted cultivation of Angelle.

Dimple has a controllable open crop during this period. Removal of the head leaf is not necessary for Dimple and climate management may be somewhat flatter. pre-nights are not necessary for Dimple during this period, or they may be restricted to 1 degree below the night temperature.

Sweetelle also remains controllably open during this period. Removal of head leaves is not relevant and climate management should be flatter. Low pre-nights are not necessary. Day temperatures are not yet high during April-May, and there is sufficient light, which allows for creation of a plant with regularity and for building up a strong growing point. This can be managed very easily during this period of the year.

Crop management in the summer

The crops of Angelle, Dimple and Sweetelle can retain leaf volume very well, but this will depend on climate zones and types of greenhouses. In particular, extremely high 24 hour periods (above 22 °C) may reduce the crop, mainly if a decision has been made in favor of a low number of heads per m^2 or if the choice was not to graft.

Watering after the longest day – around the middle of July – is extremely important in order to keep growth constant towards autumn. Oxygen store in the mat in particular is important for keeping the root healthy. The aim is to keep sufficient oxygen around the roots during the evening and night, by limiting afternoon doses in accordance with evaporation of the plant.

Crop management towards autumn

From the middle of August, we can say that summer is over for the plant, and the plant may again be more generatively managed. This can be done by again removing some additional leafs from the plant, but spread out over a number of weeks (more important for Angelle). The climate can again be adjusted more generatively if the outside climate allows. This concerns mainly cooler, longer pre-nights.

The later head dates may give cause to lower the plant density and/or to prune trusses, with the aim of “maintaining thickness and uniformity during the autumn”.

Foliage removal

Additional foliage removal to manage generativity during the spring and autumn.
Removing the leaf from the head during pinching out in periods when light is lacking may also restrict vegetativity of the crop and balance the plant better.

Ventilation

Young plants may only be ventilated to a very limited extent, mainly dictated by humidity. During the initial stage, careful ventilation will be necessary as the moisture input of the young crop is limited and the still lower outside temperatures ensure sufficient exchange of humidity.
Ventilation may take place as soon as the plant produces a surplus of moisture in the glasshouse. The basic principle is to promote activity during the morning and to control the temperature during the afternoon. It is desirable to place the air line briefly on the heat line, with, say, a difference of 0.5 °C.

From February to April, attention must be paid to the heads situated closer to the air frames, top avoid super cooling. In order to combat these cold heads, the wind side must be kept closed and controlled ventilation may take place only on the side sheltered from the wind, from the time the difference between the inside and outside temperature exceeds 10 °C.

CO_2

CO_2 is recommended to manage the plant more generatively. This can be done to best effect on young plants.
CO_2 promotes production during the entire season. It may therefore be given in large doses. It may be desirable to temporarily reduce the dose during the summer if the climate is exceptionally warm with 24-hour periods which exceed 22 °C.

Nutrition

In the start, full watering in accordance with the start schedule. This is maintained until truss 4 with possibly an increased Ca figure (Ca +1.5, and K -3) and a reduced nitrate figure (process with more chlorine and sulphates). This will produce a firmer cell structure and promote generativity.
The plant consumes additional potassium from the 4th – 7th truss, as soon as the fruits start to swell. Potassium must therefore be checked regularly, and not be allowed to fall off.
Ensure a pH which is preferably around 6 for optimum trace and main element take-up.

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