

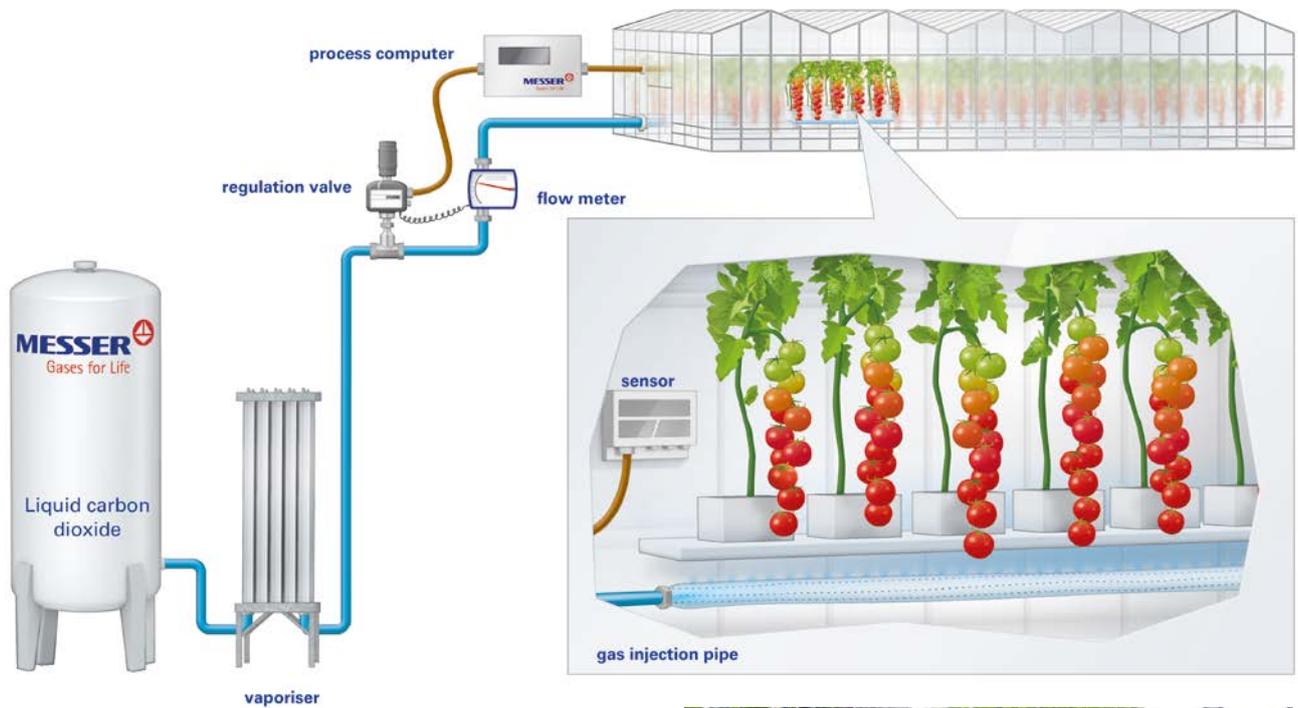
Atmospheric enrichment in greenhouses with carbon dioxide

For faster growth and more production



Benefits:

- Faster growth
- Better quality
- Reduced fungal diseases
- Higher growth rate for cuttings
- Increased flower production



Increased Crop Yield through CO₂ Addition

One of the most important goals of greenhouses is to maximise the crop yield and thereby achieve a competitive advantage. One possible route is the atmospheric enrichment in greenhouses with carbon dioxide.

The CO₂ content of the earth's atmosphere is approximately 0.04 vol%. For some plants, even with optimal starting conditions, this concentration of CO₂ is insufficient when compared to the other growth factors.

In a broad sense, CO₂ has a 'nutritional' function that optimizes growth by increasing the rate of photosynthesis.

The carbon dioxide enrichment allows crops to be grown at higher temperatures without affecting their quality.

As a more direct parallel, carbon dioxide enrichment is similar in purpose to the use of high-intensity supplementary lighting in glasshouse crop production which again influences photosynthetic rate. In contrast to other methods, pure CO₂ does not introduce any additional moisture into the greenhouse. As opposed to CO₂ produced by combustion processes, CO₂ from Messer does not contain any impurities that are harmful to crops. Pure CO₂ can be used in both summer and winter (regardless of heating systems) for a variety of crops. Some examples are: roses, carnations, chrysanthemums, freesias, gerbera, orchids, pot plants, tomatoes, green peppers, cucumbers, lettuce, celery and asparagus.



Many growers already use CO₂ enrichment in their greenhouses and profit through one or more of the following benefits:

- Increased yield of up to 35% over the entire growing season
- More rapid growth of leafy vegetables because the plants are able to make better use of the available light
- Enhanced quality, including thicker, longer stems and increased flower size, better shape and colour
- More effective shading of fruit from direct sunlight results in a higher quality surface
- Improved economic returns that arise from the better yields, earlier crops and/or reduced crop rotation times

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