Summary: Results Van Der Ende Airmix*

Van der Ende 的空气混合器摘要

The important principles for an investment in the Airmix are:

- An even climate with small horizontal temperature differences. In practice, temperature differences of 5 °C are reduced to 0.3 °C. This contributes to the plant quality and in a quantitative way; to a higher production in places where it is normally colder.

- Energy savings by keeping the screen completely closed for a longer period. Up to 20% energy savings can be achieved in an unlighted cultivation with a single screen, this is a precept based on practical experience.[1] The climate control must be applied correctly for a good result.

- Regulating the degree of humidity and / or temperature; comply with light emission legislation. Regulating the humidity results in the desired growing climate. In certain situations/ countries there are restrictions with regard to light emission. By applying Airmix, local light emission requirements can be met.

对 Airmix 投资的重要原因是:

- 温差水平小的均匀种植气候。在实践中表明，5 °C 的温差降低至 0.3°C。这有助于作物的质量和定量；在通常较冷的区域提高产量。

- 通过将幕布更长时间完全关闭来节省能源。单屏栽培可节省高达 20%的能源，这是基于实践经验的定律。气候环境控制必须正确使用，才能取得良好的效果。

- 调节湿度和/或温度；遵守光排放法规。调节湿度会改善所需的作物生长气候。在某些情况下/国家有关于光排放的限制。通过应用 Airmix 空气混合器，可以满足当局光排放的要求。

The Airmix system

The Airmix is a system with mainly two function; the horizontal circulation of greenhouse air and the ventilation/ mixing with air from above the screen. The air from above the screen is dryer, it ensures dehumidification and the air from above the screen is cooler, it also provides cooling under the screen.

Even climate

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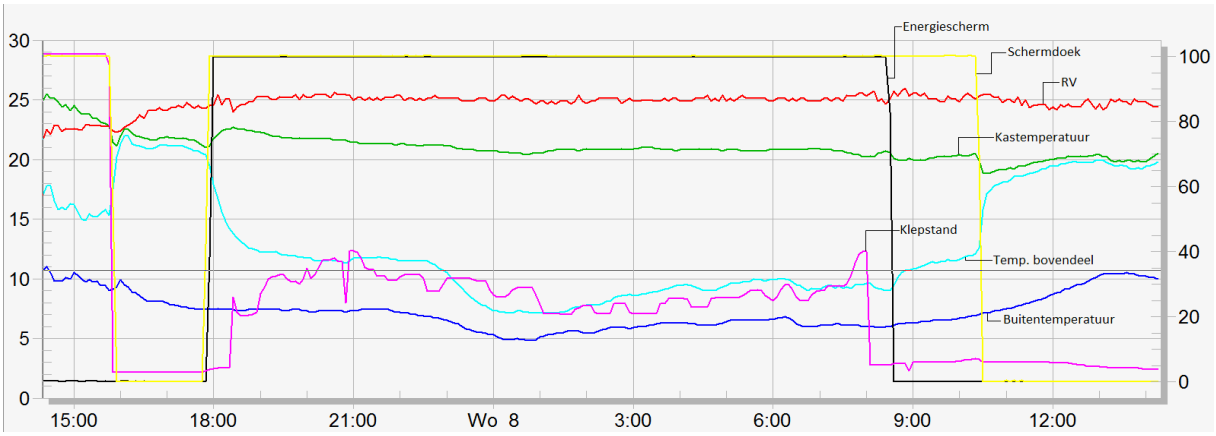
The Airmix is a controllable way of humidity removal through a closed screen. By keeping the screen closed, the wind has less influence and there are no unwanted cold air flows that result in huge temperature differences. From practical experience, feedback is given that horizontal temperature differences of less than 0.3 C° are achieved with the Airmix.

Energy savings

The energy saving by an Airmix system is not directly due to the Airmix itself, but by the way of screening. With an Airmix it is possible to make about 50% more screen hours by screening at the edges of the day. By keeping the screen closed, heat loss through radiation is limited.

Regulating the degree of Humidity and/ or temperature

Due to the modulating valves in the Airmix, the degree of dehumidification and cooling can be adjusted according to the needs. The air that is brought under the screen creates a slight overpressure, the same amount of greenhouse air is expelled upwards again by the (porous) screen.



Black	Energy screen	Cyan	Greenhouse temperature above the screen
Yellow	Screen	Purple	Valve operation of the Airmix
Red	Relative Humidity (RH)	Blue	Outside temperature
Green	Greenhouse temperature		

Cooling when shading (black-out)

Cooling when shading without a ventilation system causes challenges; the soil and substrate are still warm and deliver heat; by dissipating heat with screen gaps, temperature differences arise and unwanted light rays enter; RH quickly rises due to rapid cooling, which increases the risk of condensation. With the Airmix, outside air is distributed and brought into the cultivation area in a controlled manner, which contributes to the removal of moisture and cooling to the desired temperature.

* by Van Der Ende Groep – 200504_rev04 Airmix results

空气混合系统

Airmix 是一个主要具有两种功能的系统；温室里的水平空气循环和通风/与空气从幕布上方混合。使得幕布上方的空气更干燥，确保除湿，幕布上方的空气更清凉，也使幕布下的空气降温。

统一室内气候

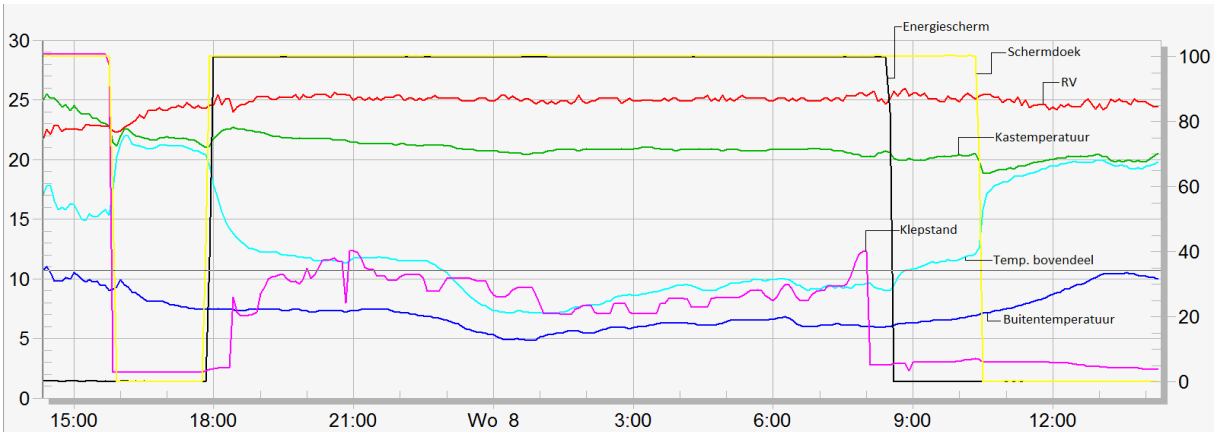
Airmix 是一种通过关闭幕布除湿的可控方式。通过保持幕布关闭，风的影响力较小，免除了不必要的冷空气流动所导致的较大温差。根据实际经验反馈表明，Airmix 实现了低于 0.3 C° 的温差水平。

节能

Airmix 系统节能功能不是直接体现在 Airmix 本身系统的功能，而是通过和幕布的配合使用。正确使用 Airmix，一天下来可以增加约 50% 的幕布使用小时。因为保持幕布关闭，光辐射产生的热量损失变为有限。

调节湿度和/或温度

由于 Airmix 的调节阀，可以根据需要调整除湿和冷却程度。带到幕布下的空气会产生轻微的过压，同样数量幕布下的空气从而通过幕布的孔洞往上输送。



黑	节能幕布	紫红	幕布上方温度
黄	幕布	紫	使用 Airmix 调节阀
红	相对湿度(RH)	蓝	室外温度
绿	温室温度		

幕布关闭时降温（遮黑）

在没有通风系统的情况下降温是十分有挑战性的；土壤和基质仍然温暖，并在散热；通过幕布间隙散热，出现高温差和不欢迎的光线进入室内；由于降温快，相对湿度迅速升高，从而增加冷凝形成的风险。当使用 Airmix，外部空气受控着进入栽培区并分布，有助于去除水分并冷却至所需的温度。

* 由范德恩德集团提供 - 200504_rev04 空气混合器效果

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