



PEA SHOOTS

Aurora Treatment Report



Alberto Campanaro

Head of Biology

ATIC, Oakwood Drive,
Loughborough,
Leicester,
LE11 3QF,
UK

+44(0)1509 276225
a.campanaro@zayndu.com
www.zayndu.com



[PUBLIC]
Version: peashoots | 110222 | 1.001

PEA SHOOTS

Pisum sativum

GROWN

Vertical Farms, Greenhouse, Open Field

GERMINATION

3-4 Days

(pre-soaking)

HARVEST

2-3 Weeks

Description

When grown as pea shoots, the stems and leaves are harvested after the true leaves have emerged, making it in fact, a plant that gets harvested immaturely. A great source of folate, antioxidants, and carotene.

Peas are quite susceptible to various pathogens; i.e. Fusarium, Alternaria, and Pythium which can cause significant crop losses (respectively up to 60%/30%/30% if untreated) and can spread to other crops.

Peas are so contagious they are often excluded from CEA farms despite the increasing demand from restaurants and producers.

Aurora Process

The Aurora process is specifically designed to increase seed health by removing pathogens and increasing germination rates. The seeds are exposed to Activated Air™ – which includes a high level of “RONS” (Reactive Oxygen and Nitrogen Species). These actively disinfects the seeds and boosts growth vitality rates and speed - ensuring increased yield for the grower.

Caveats

This treatment protocol was not fully optimised to the seed/pathogen pair; an off-the-shelf protocol was used. There may have been scope for optimisations; additionally, as Zayndu are continuously improving the Aurora product range, it is likely that improved results could be achieved if these tests were re-run now. Please contact your sales rep if you'd like more details.

Pathogens

- Fusarium
- Alternaria
- Pythium

Processing Details

Aurora Model Z10-1

Treatment Protocol Z10-08x23

Date of Treatment January 2022

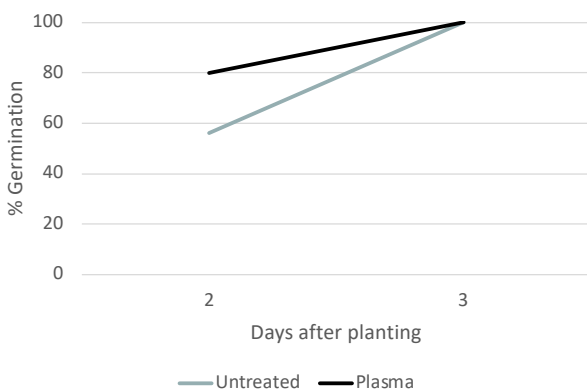
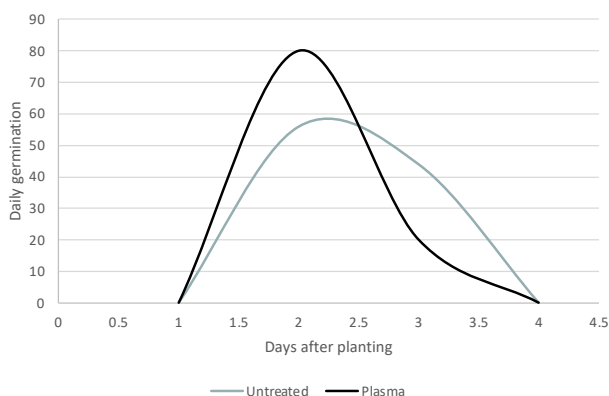
Required Activated Air™ treatment levels treatment levels reached within the laboratory, under standard operation conditions. Pathology and germination tests were carried out in accordance with industry standard operating procedures (ISTA protocols).

PEA SHOOTS

Germination

In this case both the untreated and the plasma treated seeds have been able to fully germinate, reaching the 100% of total germination.

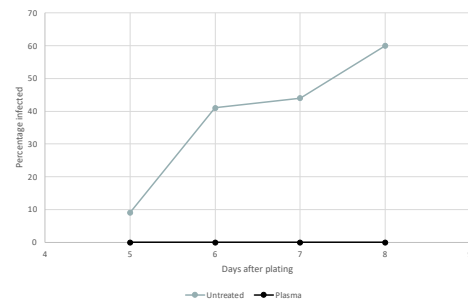
However we observed an increase in the germination pace for the Aurora treated seeds. 2 days after planting Plasma treated seeds show a 20% more germination compared to the untreated.



Pathogens

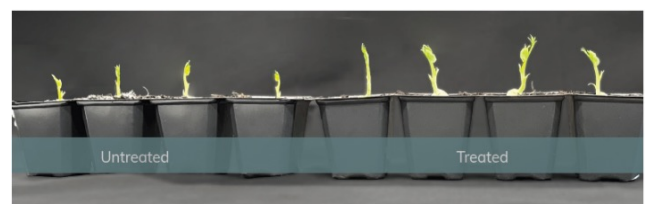
The seeds were tested for fungal pathogens. Activated Air disinfected fully the contaminated seeds.

The photo depicts fungal growing plates, evidencing an abundance of fungal growth on untreated samples, conversely the plated treated seeds show no fungal growth at all.



Overall Yield

Aurora seed treatment can increase time-to-harvest for pea shoots due to earlier germination and slight growth rate improvement. Plasma treated seedlings show improved growth rate compared to untreated ones ultimately leading to earlier harvest and increased sowing events per year.



Summary

Activated Air has demonstrated its efficacy on preventing yield loss due to pathogen outbreaks. Reducing pathogen load from ~60% of the seeds, to completely disinfected and pathogen-free following treatment. Moreover the overall seed health benefit is highlighted with the seeds are able to germinate faster as well as the seedling itself showing a growth advantage once treated.

For more details or to arrange an evaluation please contact our team below