



ON-FARM PERFORMANCE: ENHANCING ALFALFA YIELD IN SALINE CONDITIONS

MESSAGE FROM CEO



CARMIT ORON

CEO

Esteemed colleagues,

It is my pleasure to present to you the report on our research and advancements in alfalfa cultivation.

At a critical juncture where agriculture faces increasingly complex challenges due to climate change, it is crucial to underscore the importance of resilient crops such as alfalfa.

Alfalfa stands out not only as a critical source of feed for livestock but also as a key player in carbon sequestration, a process vital for mitigating greenhouse gas emissions and combating climate change. Its deep root system enables it to capture and store significant amounts of carbon from the atmosphere, thereby contributing to the reduction of atmospheric carbon dioxide levels.

Through our research and collaboration, we have achieved significant progress in enhancing alfalfa's resistance to salinity stress.

I hope this report serves as a source of motivation to continue advancing our efforts in developing innovative and sustainable agricultural solutions.



SALICROP

ABOUT US!

Salicrop offers a breakthrough solution in seed enhancement technology. Our process involves treating seeds with proprietary formulas that activate natural defense mechanisms within the seeds, making them more resilient to abiotic stresses. Crucially, this process does not involve genetic modification, ensuring seed integrity and safety.

Our technology is implemented in on open-field crops like vegetables, grains, and fodder. Through our scientifically backed methods, we boost crop yields.

Salicrop has demonstrated remarkable results, with yield enhancements ranging from 10% to 25% across various plant species. This significant increase in production underscores our dedication to cost-efficiency and profitability for farmers around the world.



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SCALING PROCESS

Our seed resilience enhancement process follows a scaling progression:

Laboratory Testing: Initial testing is conducted in controlled laboratory settings to validate the effectiveness of the seed treatment process.

Small-scale demonstrations in various crop varieties and regions, typically covering an area of two hectares per demonstration.

Precommercial Collaboration: Collaborative efforts with agricultural partners involve scaling up to precommercial levels, covering up to 50 hectares of farmland to further validate performance and scalability.

Full-Scale Deployment: Upon successful validation and collaboration, our seed enhancement technology is ready for full-scale deployment, enabling widespread adoption by farmers seeking to enhance crop resilience and productivity.

2021

The study commenced in Alfalfa plot under high salinity conditions.

2022-2023

Expanded research efforts to include additional plots, covering a treated area of approximately 11 hectares.

2024 -2025

Full-scale commercial seed enhancement, expanding into new markets and regions.

OUR PROFESSIONAL TEAM

At Salicrop, we stand at the forefront of agricultural innovation, fueled by a deep commitment to creating a sustainable and resilient food future. Our journey began with a bold vision: to revolutionize the sector through cutting-edge seed treatment technology



SHARON DEVIR, PH.D, CHAIRMAN

Sharon, GM at Rimonim VC and pivotal investor in SaliCrop, brings over 20 years of expertise in agro-tech, dairy, and startups. With leadership roles at NGT and CSO at SAE Afikim, along with experience at IMAG-DLO and co-founding Roots Sustainable AgriTech, Sharon, with a PhD from Wageningen University and MSc/BSc from Technion-Israel, stands as a driving force in agricultural innovation.



RCA GODBOLE, PH.D, CSO

Rcā, with a molecular biology background, oversaw regulatory compliance at Syngenta India and led Quality Assurance in pharmaceuticals before advising on IP and technology in Mumbai. Holding a PhD from Albert Ludwig University and MSc/BSc from the University of Mumbai, Rcā conducted post-doc research in Germany at esteemed institutes.



MATAN MIRE, LAB MANAGER

Matan, equipped with advanced degrees in biology and agriculture, specializes in agronomy, focusing on plant health. His expertise includes evaluating agricultural damage, backed by an MSc in Evolutionary and Environmental Biology and a BSc in Plant Physiology Sciences and Genetics, offering a holistic grasp of plant sciences.



ORON BET OR, COO

Oron, with 15+ years in senior management across agricultural companies and startups, holds a B.Sc.Agr, an M.Sc.Agr, and an MBA, embodying a blend of practical and strategic expertise.

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EXECUTIVE SUMMARY

Salinity presents a pervasive challenge in agriculture, particularly in regions with low rainfall, impacting approximately 10% of global land. Alfalfa, covering 79 million acres worldwide, is moderately sensitive to salinity. Poor cropping practices have led to soil salt accumulation, diminishing productivity.

To combat this, efforts to develop salinity-tolerant alfalfa seeds is essential to mitigate yield losses.

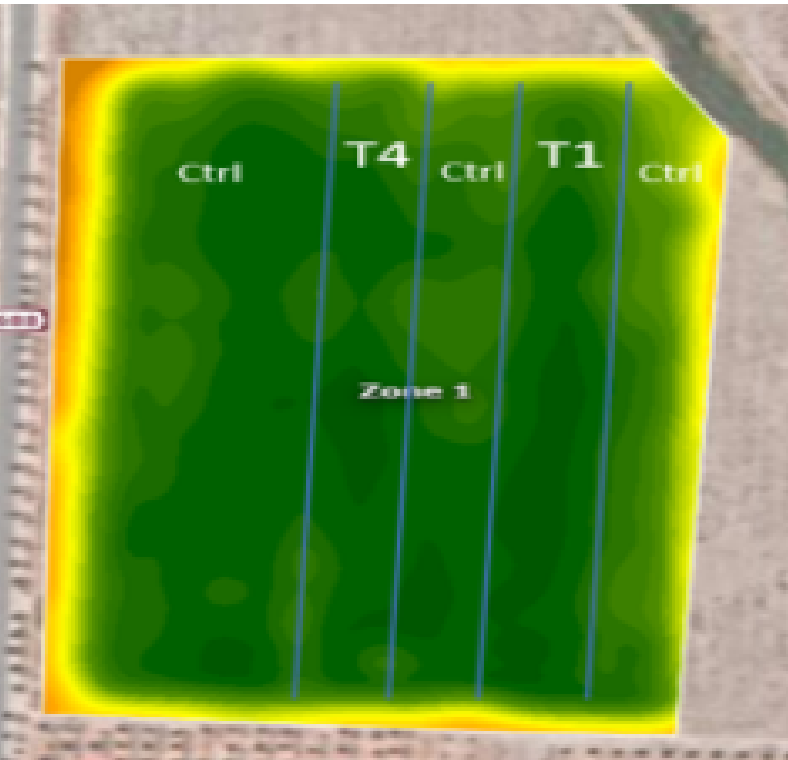
In Springs Valley, Israel, where high salinity levels affect agricultural output, a comprehensive field trials are underway to enhance plants' resilience to salinity across alfalfa plots. Despite challenges posed by high salinity water sources, initial results are promising. Continuous monitoring and collaboration with local farmers aim to improve crop yields and sustainability in challenging agricultural conditions, emphasizing the importance of adopting enhanced alfalfa seeds for long-term agricultural viability.

Hoveri plot is located in the Spring Valley in Israel which serves as a natural laboratory for researchers and scientists, offering insights into the mechanisms of salt tolerance and providing invaluable knowledge for agricultural practices in arid regions worldwide. While the high salinity presents challenges, it also underscores the beauty and complexity of Israel's diverse landscapes, offering a glimpse into the fascinating interplay between geology, ecology, and human adaptation.

We studied alfalfa growth under salinity stress using Salicrop-treated seeds. Beginning October 20, 2021, we monitored a 2-hectare area with Salicrop treatments T1 and T4, alongside an 8-hectare control (Ctrl), to assess yield under high salinity irrigation. We utilized remote sensing techniques, notably NDVI, to track vegetation vigor. Throughout the season, NDVI imagery of the Hoveri plot revealed significant differences, with the T1 treatment area showing vibrant greenery, indicating robust growth compared to other areas.



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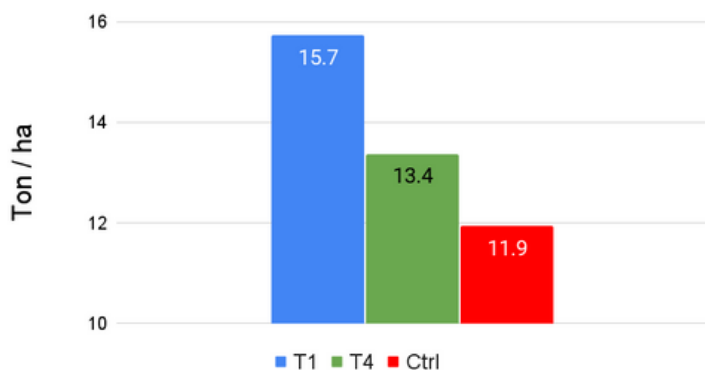
HOVERI PLOT OBSERVATION

Data analysis of harvests from the Hoveri plot showed consistent and significant yield improvements in treated areas compared to the control. Specifically, the T1 treatment outperformed the control by an impressive 32% on average, while the T4 treatment yielded approximately 16% higher. Over two years and multiple harvests, this confirms Salicrop treatments' effectiveness in boosting crop productivity under high salinity. Additionally, income calculations demonstrated substantial economic benefits, with the T1 treatment area earning \$1,374 more per hectare compared to the control in the first growing season.

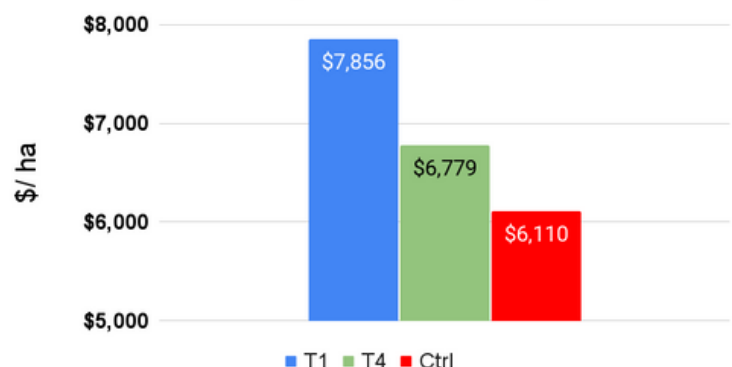


For precise data collection and analysis, we've partnered with local farmers to conduct ongoing monitoring and evaluation of harvests across all plots. This involves counting alfalfa bales in treated and control areas using various methods: manual counting, automated counting with harvesting machinery, and aerial drone imaging of the plots.

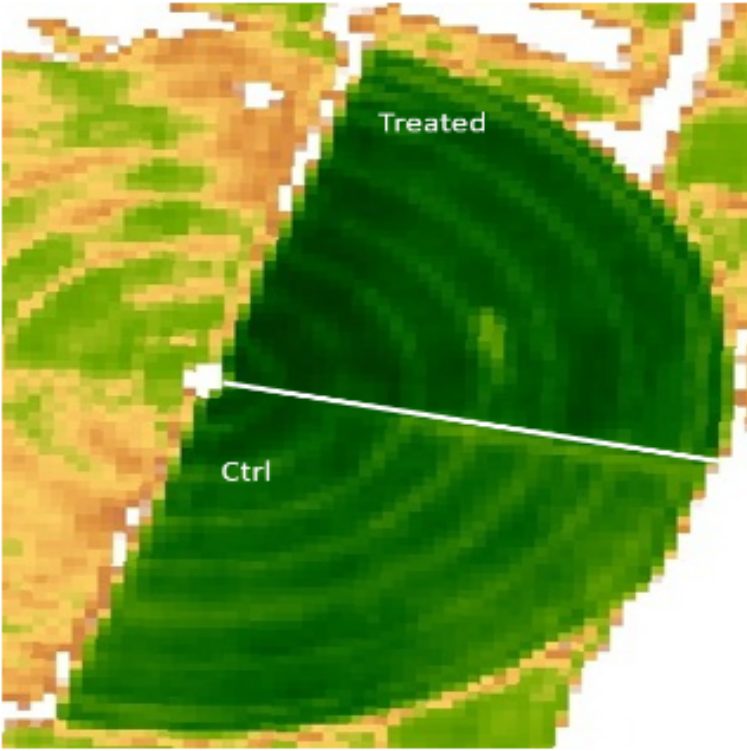
Total 8 harvests yield Hoveri plot



Hoveri plot income (\$ / ha)



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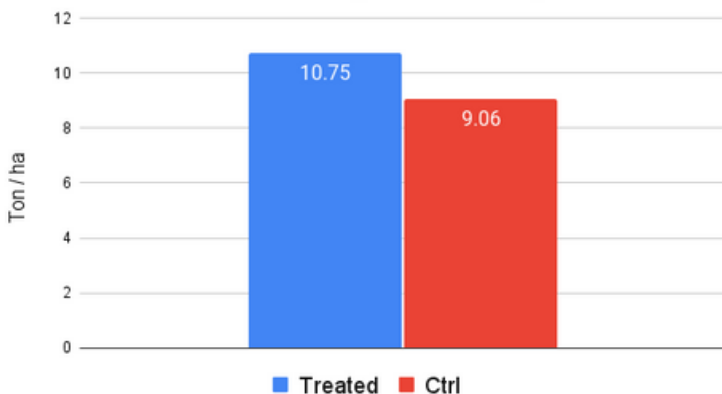
MAHMULA PLOT TRIAL

Soil salinity tests conducted in the field indicated high salinity levels in the Mahmula plot, The test was taken from a depth of 30 cm, and indicated an electrical conductivity level (EC) of 12.1 dS/m, emphasizing the challenging conditions under which the Salicrop seed treatments were evaluated. The results from the Mahmula plot further underscored the positive influence of Salicrop treatments on crop yield under salinity stress. NDVI monitoring revealed strong vegetative growth in treated areas, resulting in a steady yield rise throughout all harvests. These harvest findings from Mahmula provide valuable insights into the effectiveness of Salicrop treatments in enhancing crop yield amidst high salinity conditions, with data showing a notable increase of over 18%.

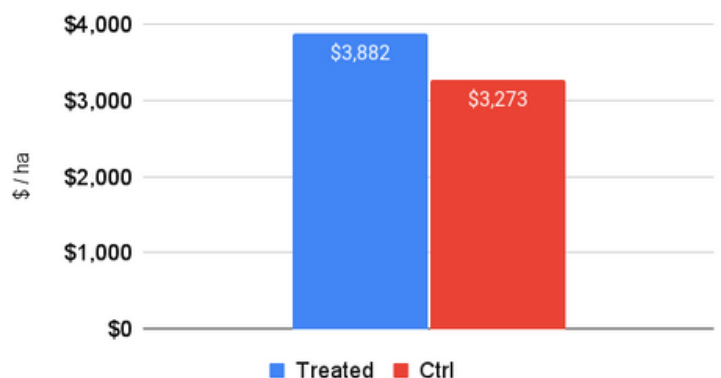
FACTS ON ALFALFA

Alfalfa, particularly susceptible to saline stress, experiences decreased germination rates, stunted growth, and compromised productivity. Moreover, salt accumulation directly harms plant tissues, exacerbating the challenges. Each increase of one EC point above EC=2 dS/m results in an approximate yield loss of 7.3% in alfalfa.

Total 6 harvests yield Mahmula plot



Mahmula Plot Harvests (\$/ha)



OBSERVATION SUMMARY

In conclusion, this study emphasizes the significant advantages of Salicrop seed enhancements for alfalfa cultivation under salinity stress. These enhancements foster robust growth, quick recovery between harvests, and higher crop production. They present promising prospects for sustainable agriculture, highlighting the importance of innovative solutions to combat salinity stress for a prosperous future.

Elevated salinity levels present a formidable challenge to alfalfa cultivation, precipitating reduced yields and consequent income loss for farmers. However, in our field trials, we demonstrated the potential for income increase in saline-stressed alfalfa fields worldwide. Our findings reveal a notable upsurge of up to 30% in yield during the initial season. This increase translates to a commendable financial gain, with an estimated additional income of \$1,374 per hectare per season. Extrapolating this over a three-year cultivation cycle, the potential earnings soar to over \$4,000 per hectare. With this promising yield surge in the initial two seasons, we are eagerly anticipating future alfalfa harvests as we plan to expand into more commercial alfalfa plots.



Continued monitoring and research are vital to understand the long-term effects of Salicrop treatments on crop resilience. Salicrop is dedicated to fortifying seed resilience, especially against abiotic stresses like high salinity and heat. The anticipated outcomes of this research could substantially increase crop yields and enhance agricultural sustainability in Springs Valley's challenging agro-climatic conditions. Our findings show a notable increase in productivity within treated areas compared to controls. As this three-year investigation progresses, Salicrop remains committed to monitoring harvest outcomes across all plots and advancing alfalfa cultivation efforts in collaboration with local stakeholders.



SEEKING GLOBAL PARTNERSHIPS FOR SUSTAINABLE SOLUTIONS

In the context of climate change, the future of alfalfa cultivation faces significant challenges, particularly in regions susceptible to soil salinization and rising sea levels. As global temperatures continue to rise and extreme weather events become more frequent, the salinization of soils poses a considerable threat to agricultural productivity. Additionally, the anticipated rise in sea levels exacerbates this issue, especially in coastal areas where alfalfa cultivation is prevalent.

In response to these challenges, Salicrop is actively seeking potential partners worldwide to implement its innovative technology aimed at mitigating the effects of soil salinization and enhancing crop resilience in the face of climate change. By collaborating with partners across different regions, Salicrop aims to leverage its expertise and technology to develop sustainable solutions that ensure the continued viability of alfalfa cultivation in the midst of changing environmental conditions. This proactive approach underscores Salicrop's commitment to addressing the pressing challenges posed by climate change and advancing the future of agricultural sustainability on a global scale.

