
# THE BIOSTIMULANT POWER OF ALGAE

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J.M. Huber Corporation

## MISSION AND PHYLOSOPHY

Improve agricolture production

Reduce environmental impact

## MAIN MARKET SECTOR

Fertilizers

Organic agricolture

## RESEARCH AND DEVELOPMENT

Corporate research center

Multidisciplinary research

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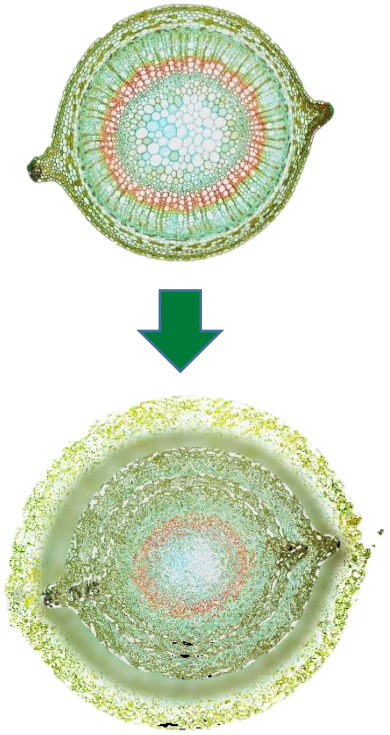
# Seaweeds

## source of natural compounds with strong plant biostimulant activity



1) Macrocystis (Brown algae) > 1200 chemical compounds

2) Environment chilean coast - humbolt current

3) Cold state cell disruption (P)

- Amino acids
- Carbohydrates (alginates, fucoidans, mannitol)
- Betains
- Sterols (fucosterol and derivatives)
- Growth hormones (auxin, gibberellin ecc.)
- Minerals
- Carotenoids (α, β, ε-carotene)
- Xanthophylls (fucoxanthin, flavoxanthin, violaxanthin
- Polyphenols (phlorotannins)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# Biostimulant efficacy evaluation

Combined strategy
Open field

Pure product eficacy
Fully controlled condition

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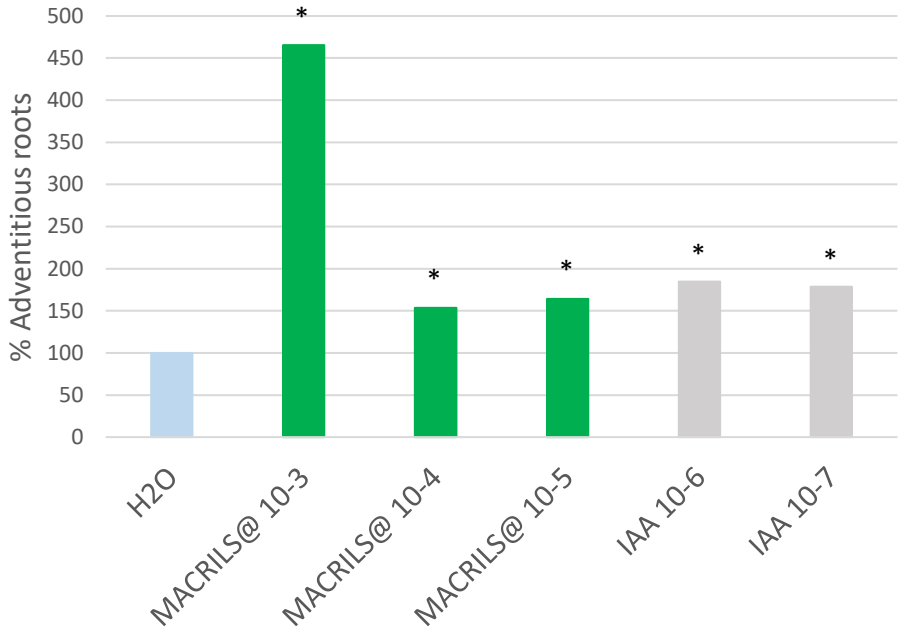
Fully controlled conditions

# Biostimulation of adventitious roots


*statistically significant
IAA sintetic  Indol-3-acetic acid

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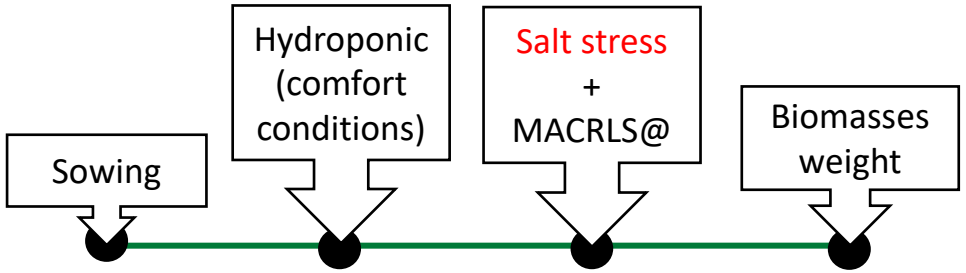
Fully controlled conditions

# Improve tollerance against salt stress


- Root application
- Evaluation of:
  - Fresh biomasses (leaves and roots)
  - Dry biomasses (leaves and roots)

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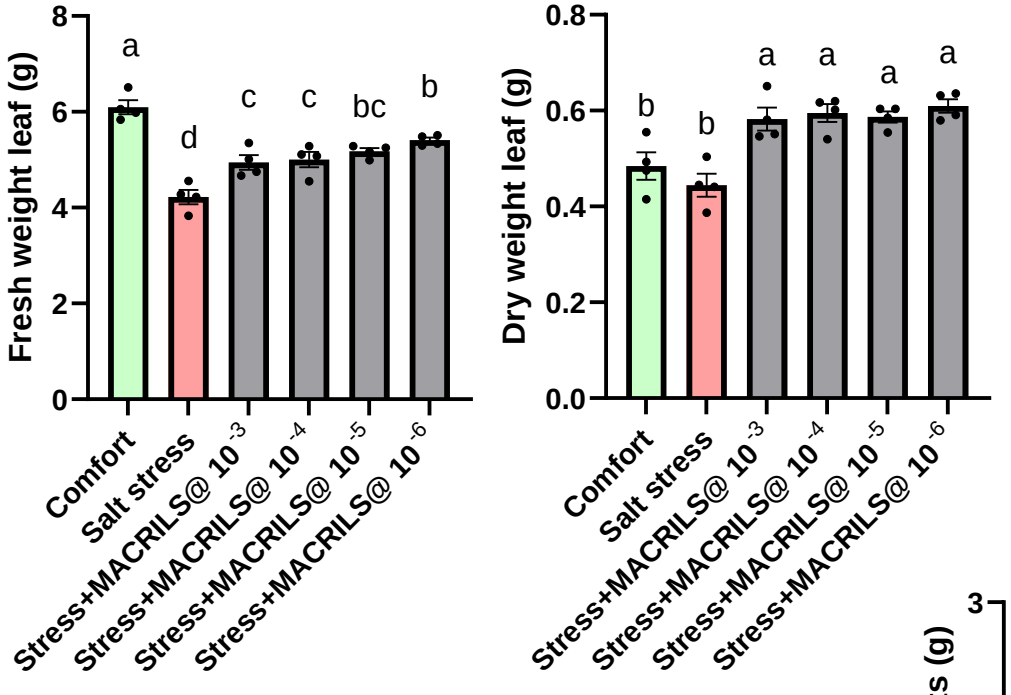





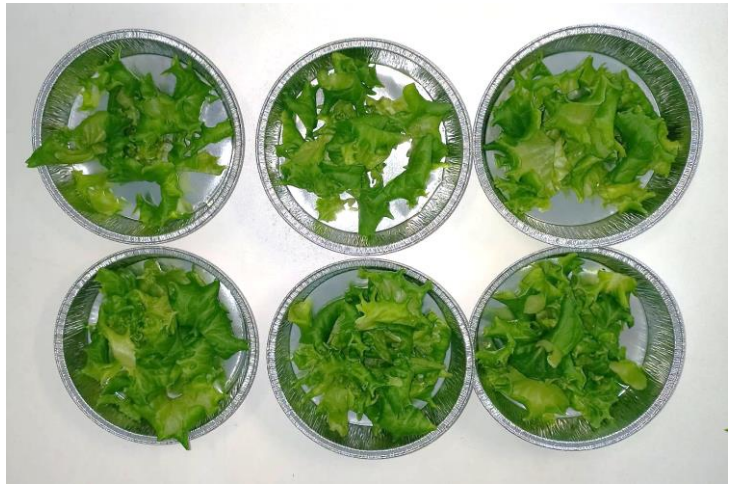


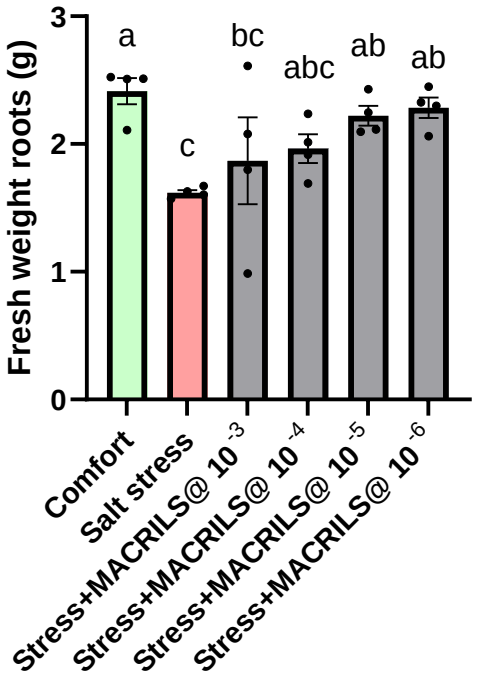


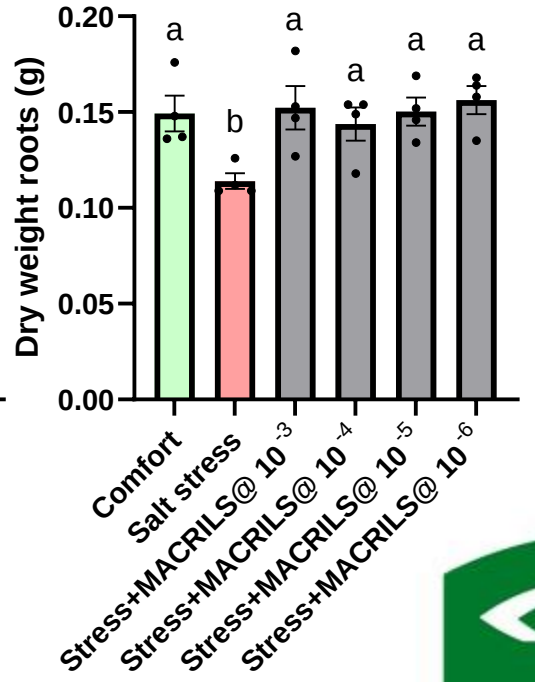


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Open field

# Increase in fruit setting and yield


| Test details | |
|---|---|
| Crop | Strawberries |
| Type of test | Full field |
| Place | Chile |
| Route of application | Leaf application |


| Treatments | | Product components | L/ha | Timing |
|---|---|---|---|---|
| ILSA | ILSAMIN N90 + MACRILS@ | Amino acids based product + Seaweed based product | 0,75 + 1 | 10 times, every week, during vegetative period |
| Competitor | T1 + T2 | | 1 + 0,75 (According to manufacturer's best practice) | |

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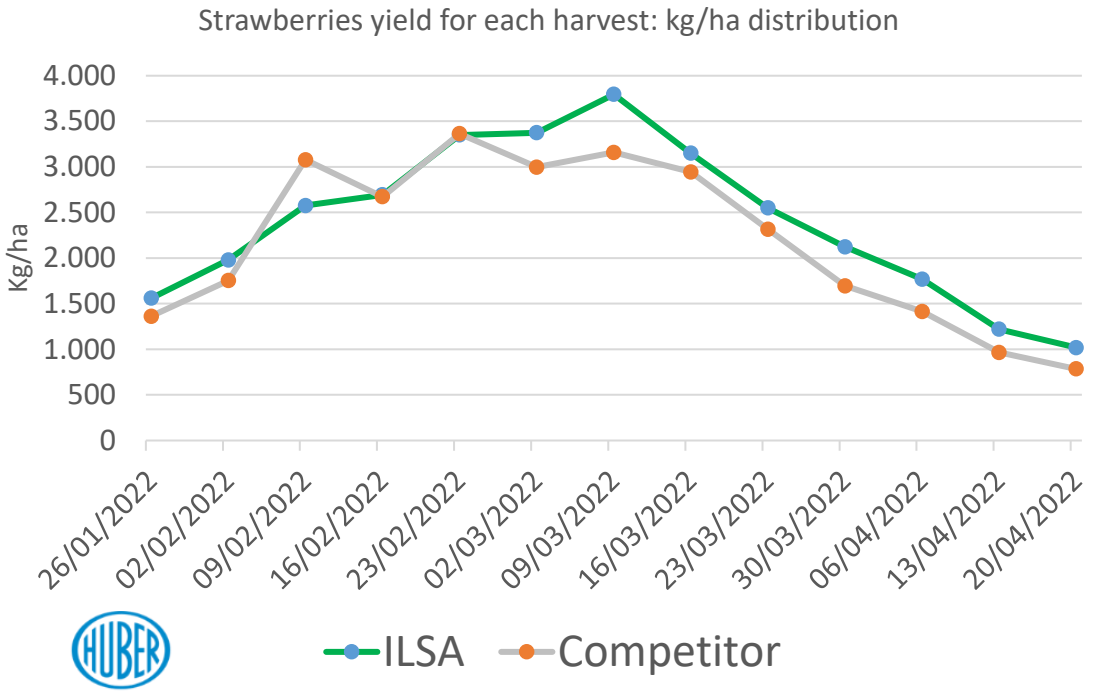


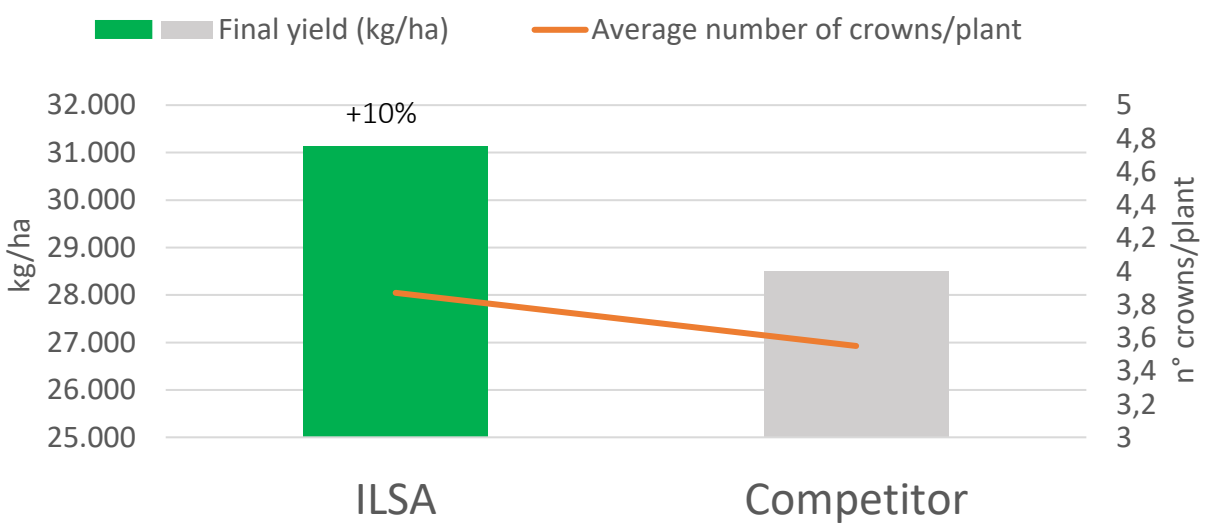


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# Bunches elongation


| Test details | |
|---|---|
| Crop | Table grape |
| Type of test | Full field |
| Place | Italy - Puglia region |
| Route of application | Leaf application |

Phenological stage

1° application

2° application

| Treatments | | g/ha | Timing |
|---|---|---|---|
| ILSA | ILSAFITOCELL + MACRILS@ | 2000 + 2000 | 2 times, every 8 days starting from already differentiated bunch |
| Competitor | T2 | According to manufacturer's best practice | |
| Witness | - | - | |

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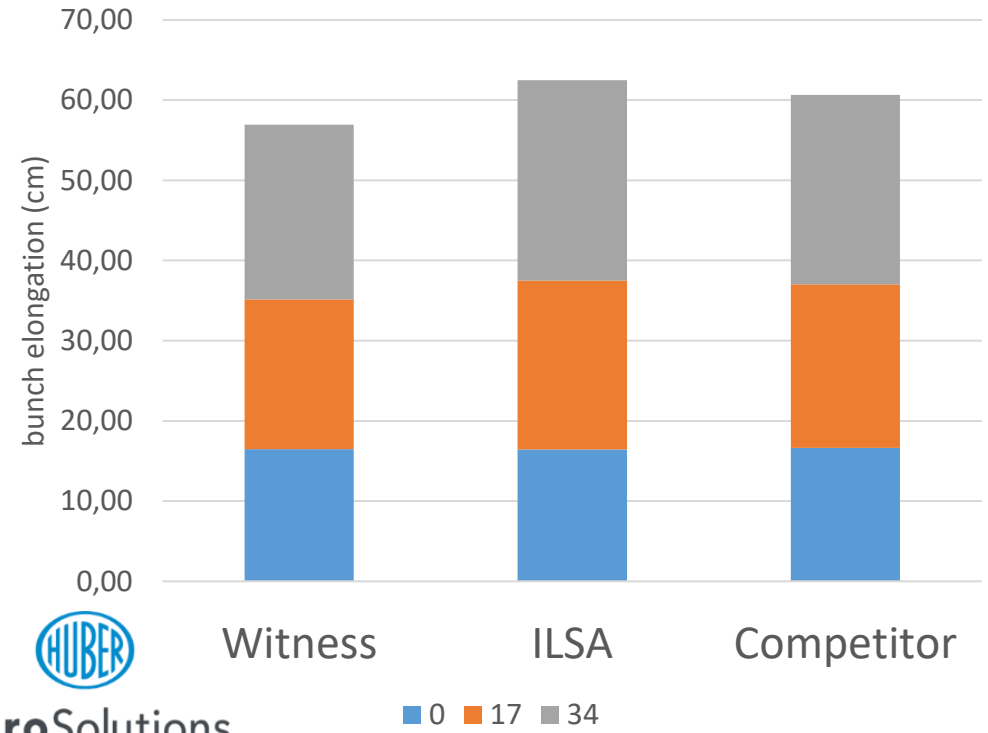
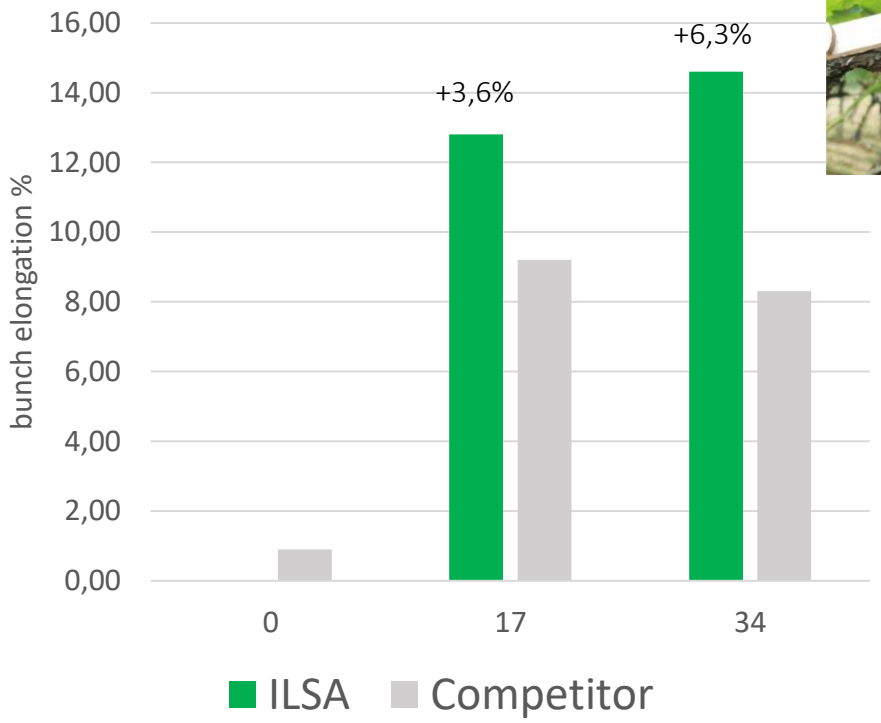
# Effect of treatments on bunch lenght

| Measures (days after 2° treatment) | Witness | ILSA | Competitor |
|---|---|---|---|
| 0 | 16,48 b | 16,43 b | 16,62 b |
| 17 | 18,69 c | 21,08 ab | 20,42 bc |
| 34 | 21,78 d | 24,96 ab | 23,59 bc |

| Measures (days after 2° treatment) | ILSA (%) | Competitor (%) |
|---|---|---|
| 0 | 0,00 | 0,90 |
| 17 | 12,80 | 9,20 |
| 34 | 14,60 | 8,30 |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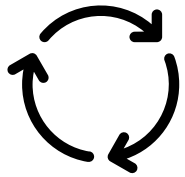
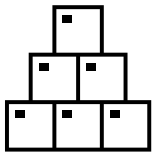
# Future perspectives

Enhance seaweed biostimulant effect on crops



→ Process

(e.g. biocatalysis, SFE)



→ Blends

(e.g. sinergistic combination of macro and micro algae)

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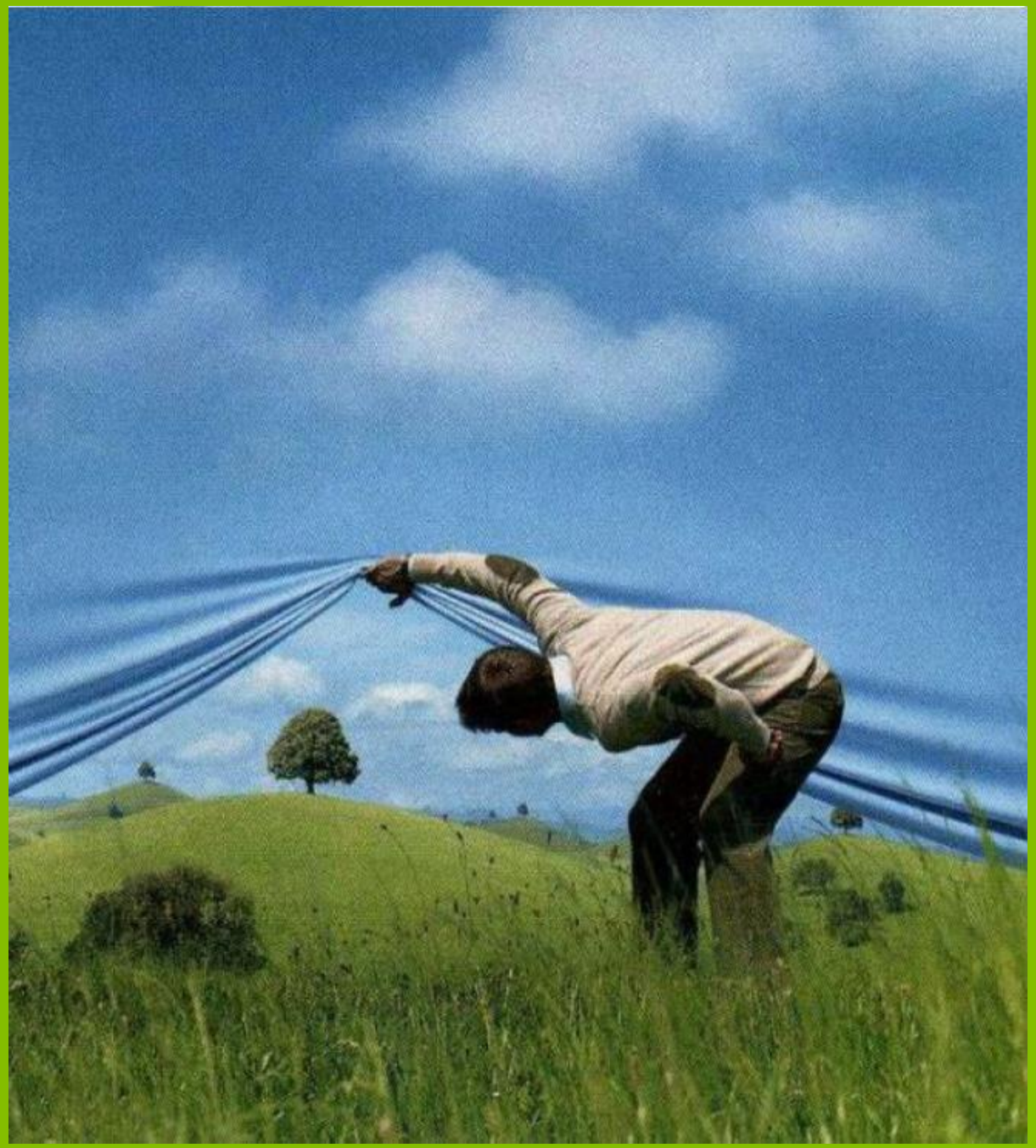

# Thank you

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