



TAKE A CHILL PILL: REDUCING STRESS LEVELS OF SMOLT SALMON (*Salmo salar*) USING A COMMERCIAL BLEND OF *Melissa officinalis* EXTRACT DURING TRANSPORTATION REDUCES EARLY MORTALITY AT SEA

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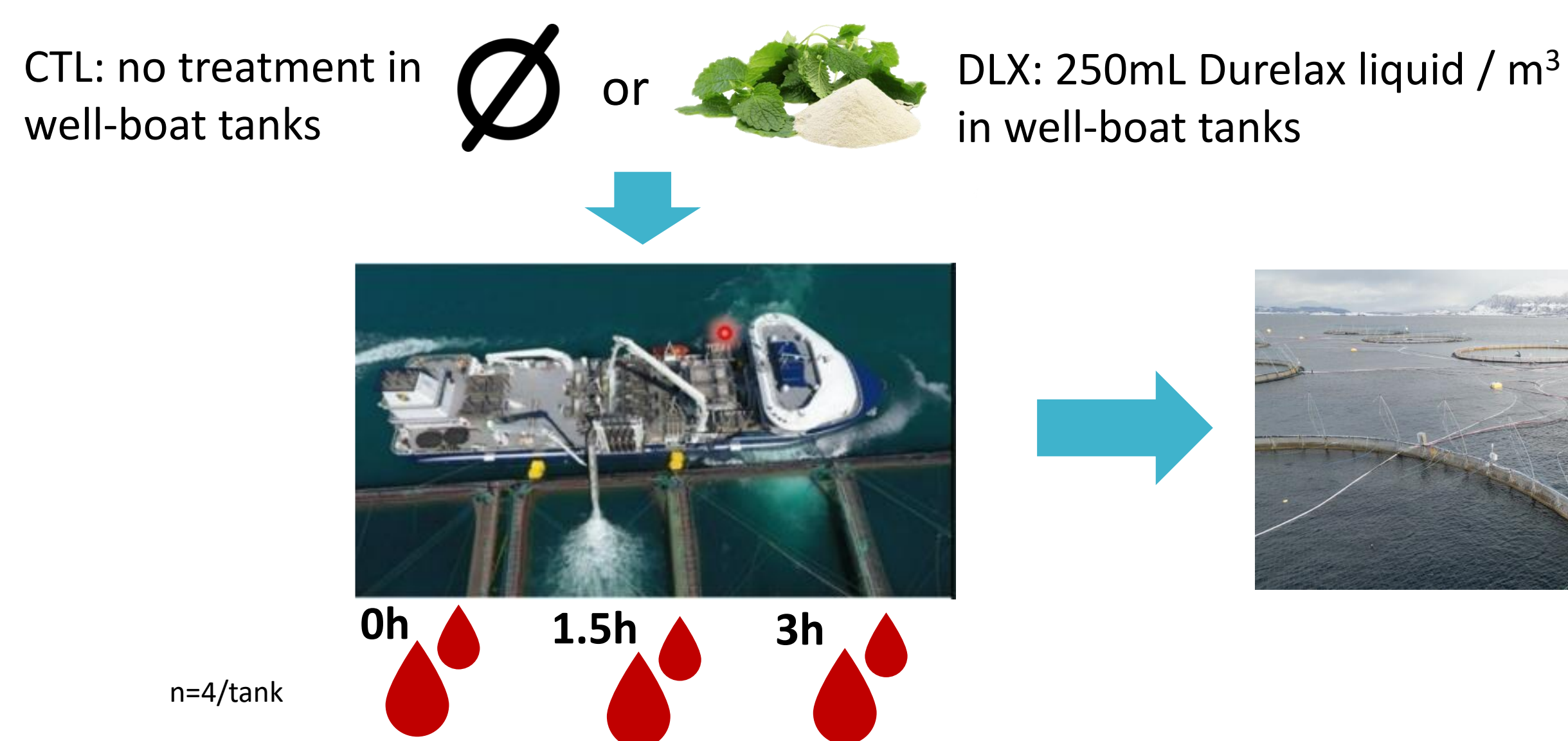
Introduction

Stress is a critical aspect of fish farming since it can trigger metabolic cascades resulting in immunosuppression and weakening of the fish. Previous research showed that the use of a commercial blend of *Melissa officinalis* and soluble magnesium (Durelax[®] Liquid, DLX, Nor-Feed, France) in the water of juvenile Atlantic salmon (*Salmo salar*) led to the reduction of their circulating cortisol levels (Labalette *et al.* 2018).

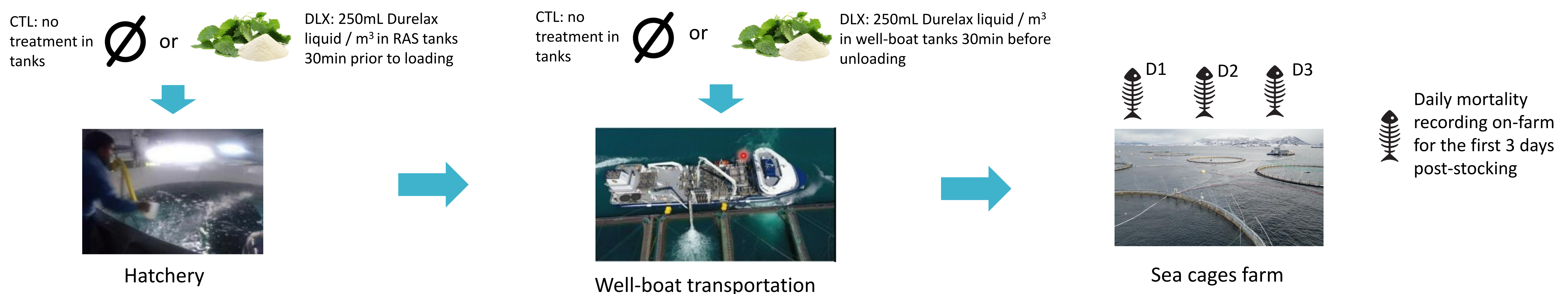
The aim of the present field study was to evaluate the effect of the use of this solution in the transfer water of smolt salmon from the RAS farm to sea cages in challenging conditions, and to follow the mortality events in the first few days at sea.

Material and Methods

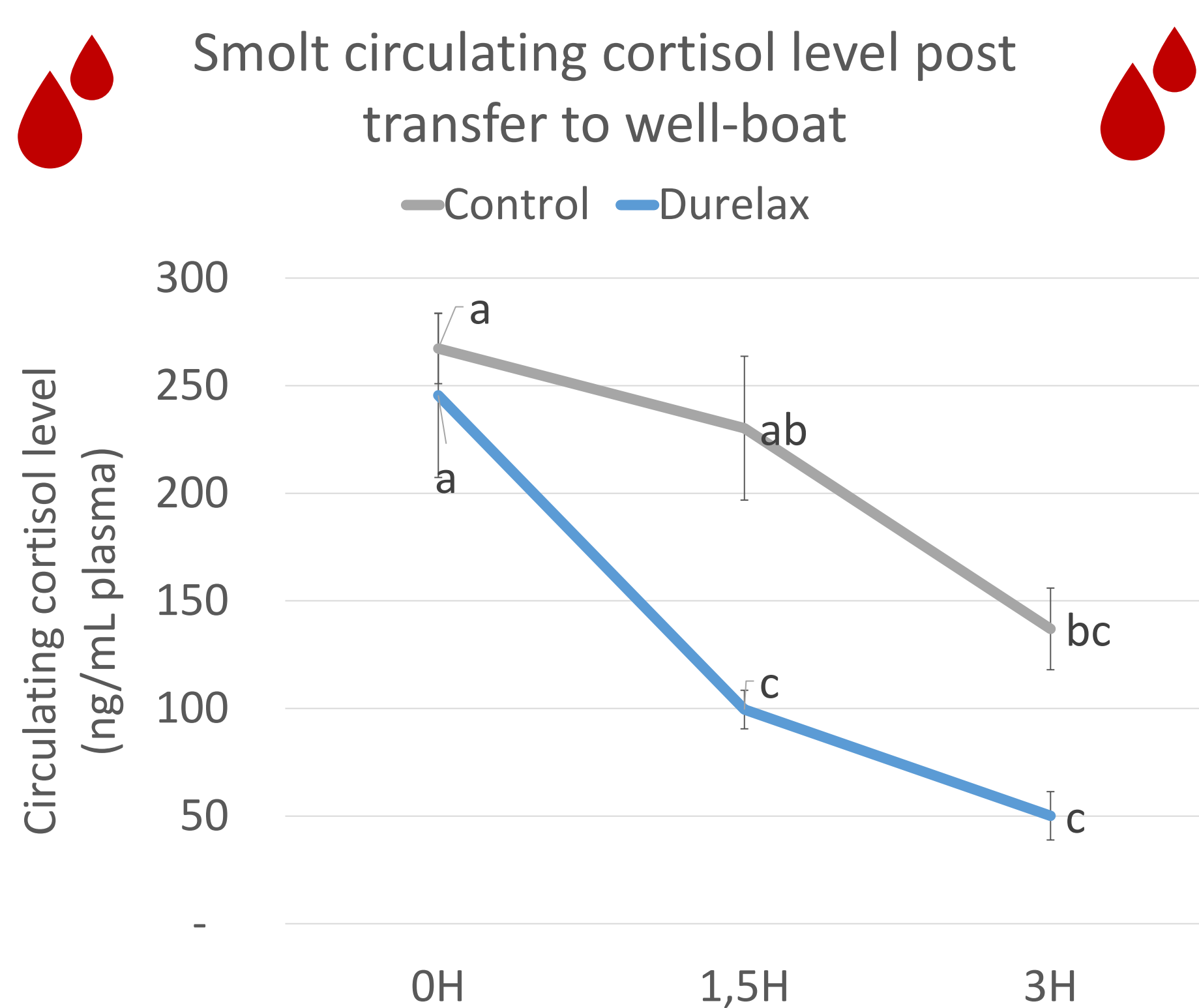
Field trial 1 : monitoring the evolution of stress level biomarkers during smolt transportation in well-boats



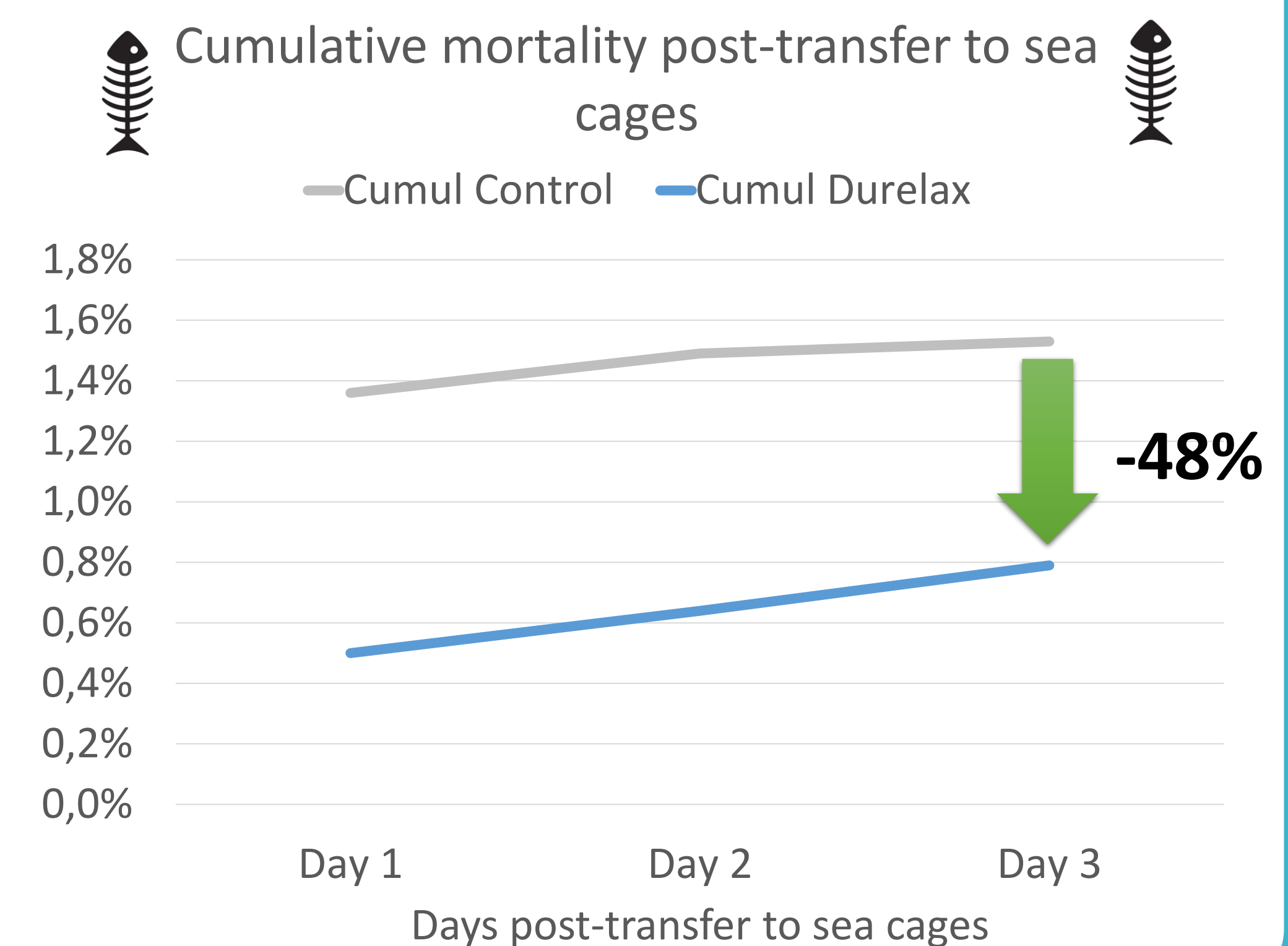
Field trial 2 : monitoring the effect of the supplementation on resilience to stress throughout the transportation from hatchery to farm



Results



Circulating levels of cortisol in the smolt from the DLX group showed a faster reduction of circulating cortisol than the control group, with significantly lower levels 1.5h after loading ($p < 0.05$, fig. 1). In addition, the second trial showed a drastic reduction of mortality at sea within the first 3 days post-transfer in both replicates (-48.0% in both cases, fig 2: cumulative mortality of smolt at sea).



Conclusion

The results confirm previous findings on the use of DLX to reduce stress in smolt salmon as evidenced by the reduction of circulating cortisol levels. This better management of the fish stress around this critical period, in turn, leads to decrease in mortality post transfer to sea cages, thus providing positive economical return.

References

Labalette *et al.* 2018, Water supplementation of a mixture of *Melissa officinalis* extract and magnesium to reduce physiological stress reactions of salmon (*Salmo salar*), World Aqua Congress, Montpellier.