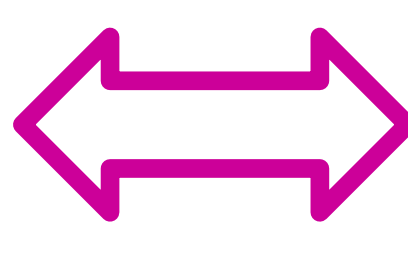


## INTRODUCTION

## OBJECTIVE

The Yield-SAFE is a biophysical model to predict the long-term production according to light and water availability in exclusively agricultural and forest systems and also in agroforestry systems in which woody vegetation, crops and/or livestock are integrated on the same area of land

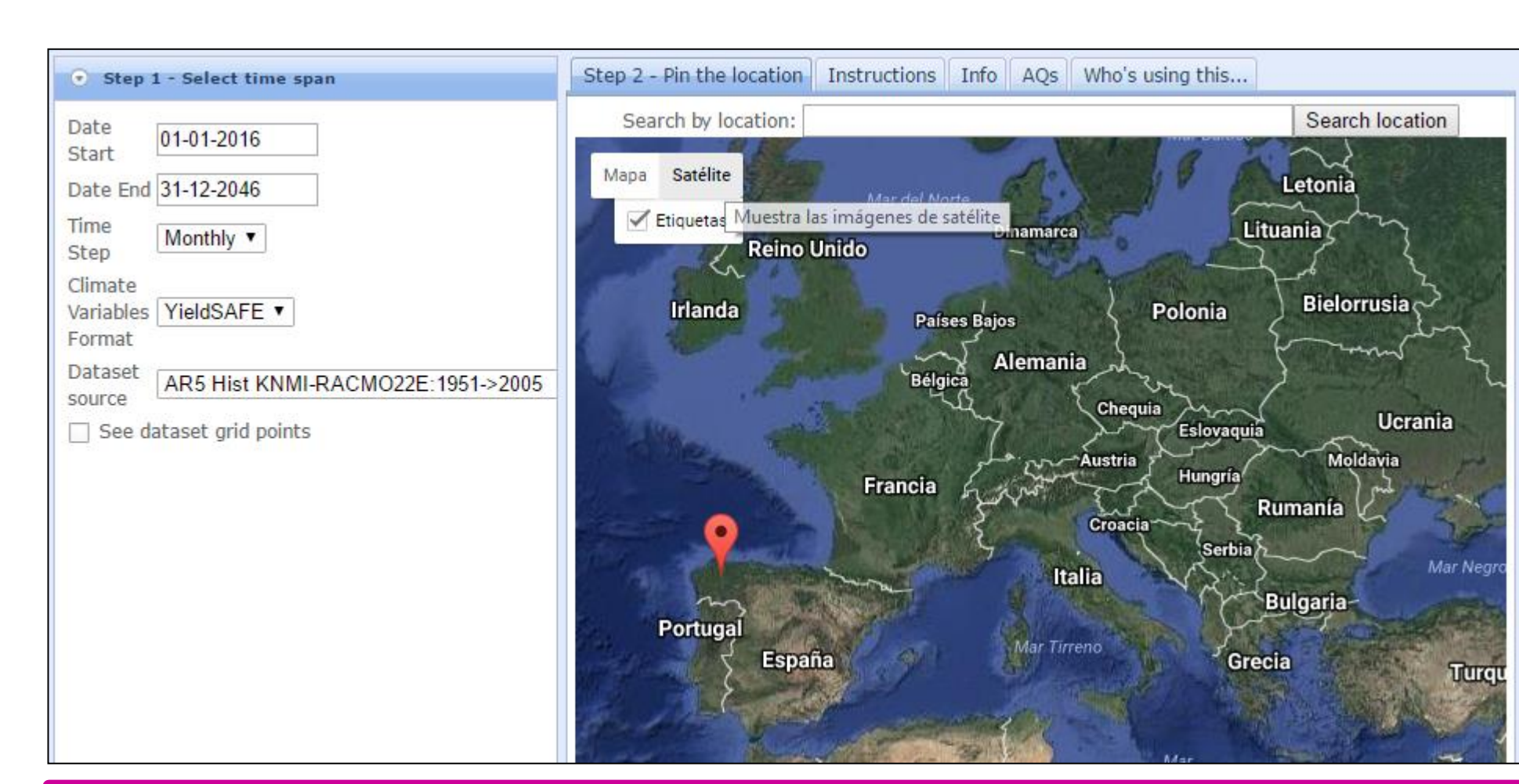
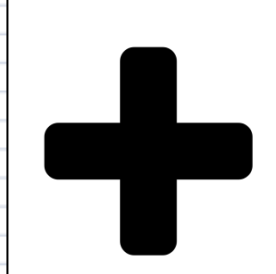
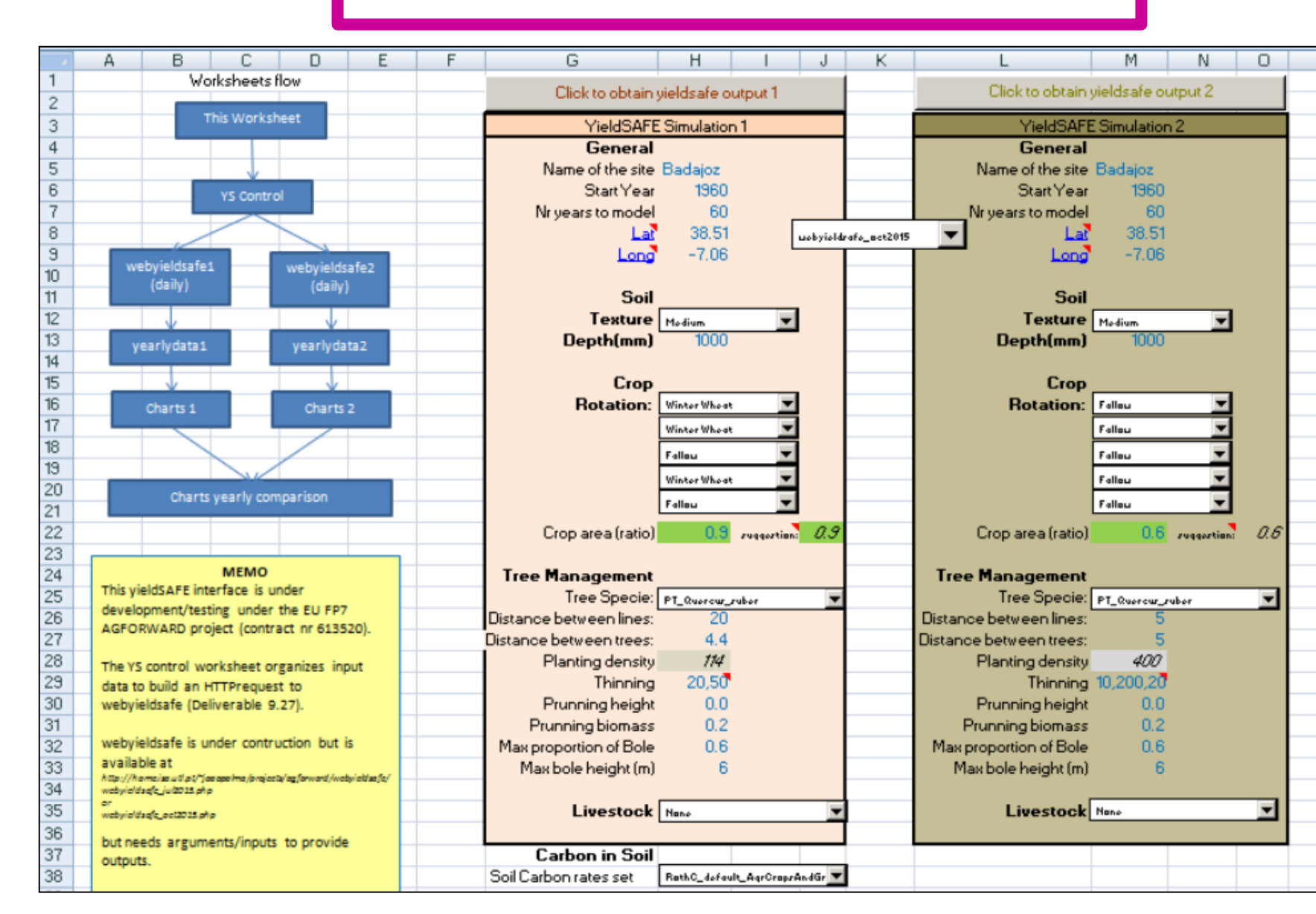
The productivity estimated with the Yield-SAFE model can be used to determine the Land Equivalent Ratio (LER). The LER allows compare the productivity of an agroforestry system with the productivity of a monoculture system



To determine the productivity of exclusively forest and agricultural systems and a silvopastoral system established with *Pinus radiata* D. Don in Galicia (NW Spain) through the Yield-SAFE model to calculate the LER

## MATERIALS AND METHODS

### Yield-SAFE model



### CliPick tool (climate daily data)

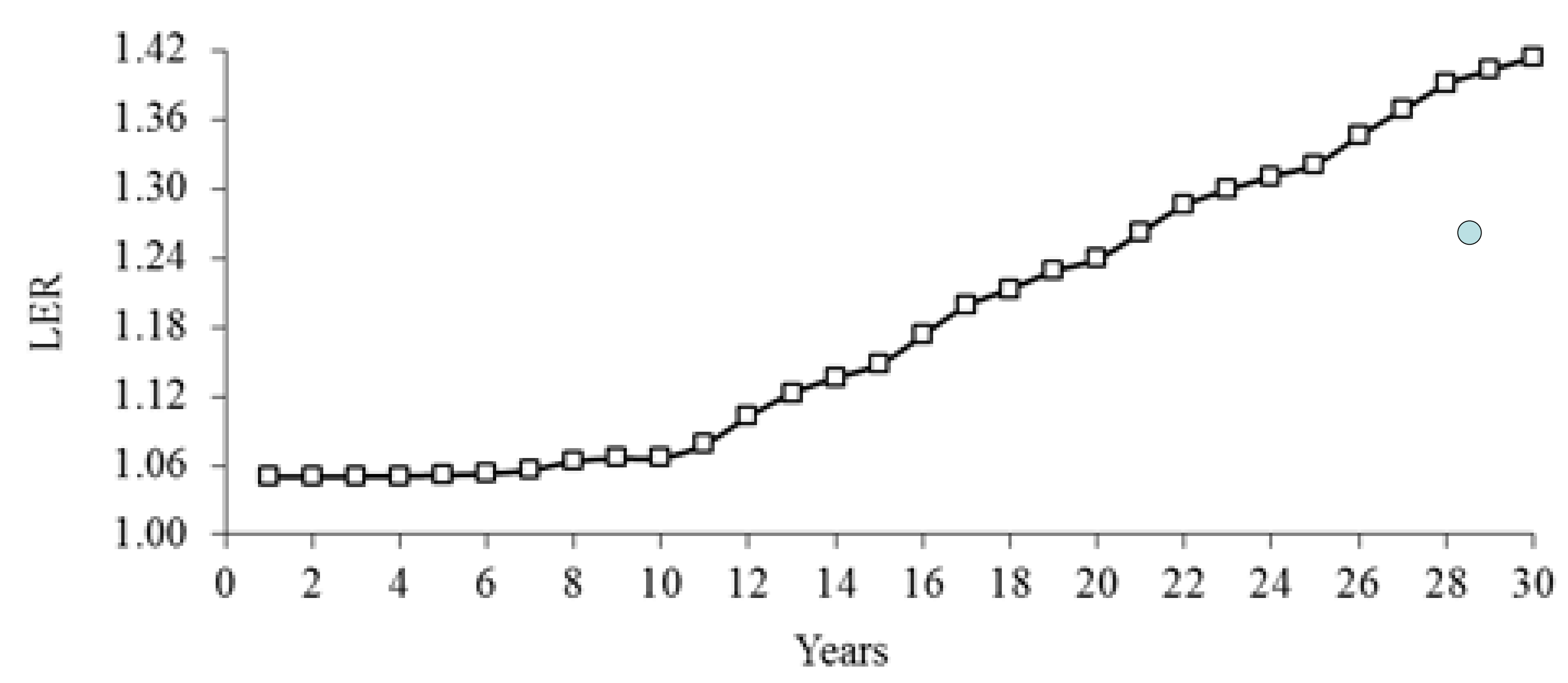


## SIMULATIONS (Pasture Production and Stand Volume)

- i) Forest systems established with *Pinus radiata* D. Don. It was simulated the management carried out in the yield tables for this tree species in Galicia
- ii) Agricultural systems with a *Dactylis glomerata* L. pasture which was harvested three times in the spring and one time in autumn to replicate traditional practices in Galicia
- iii) Silvopastoral system in which the pasture was combined with *Pinus radiata* D. Don established at 100 tree ha<sup>-1</sup> to keep the land eligible for CAP support. It was simulated that the pasture was harvested three times in the spring and one time in autumn during the first ten years and then only one time in the spring and one time in the autumn because the pasture production decreases over time due to the shade generate by the trees

$$LER = \frac{\text{pasture production in agroforestry}}{\text{pasture production in agricultural}} + \frac{\text{stand volume in agroforestry}}{\text{stand volume in forestry}}$$

## RESULTS



At the end of this study the hypothetical silvopastoral system produced 41% more than the exclusively forest and agricultural systems



**CONCLUSION:** the LER simulated by the Yield-SAFE model was 1.41 which indicates that the hypothetical silvopastoral system of this experiment was more productive than the exclusively forest and agricultural systems probably due to the diversified production of the silvopastoral systems. Therefore, the establishment of silvopastoral systems could be promoted around the Europe due to its high productivity compared with the exclusively forest and agricultural systems which is increased by the non-market products that the agroforestry systems support

## ACKNOWLEDGEMENTS

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