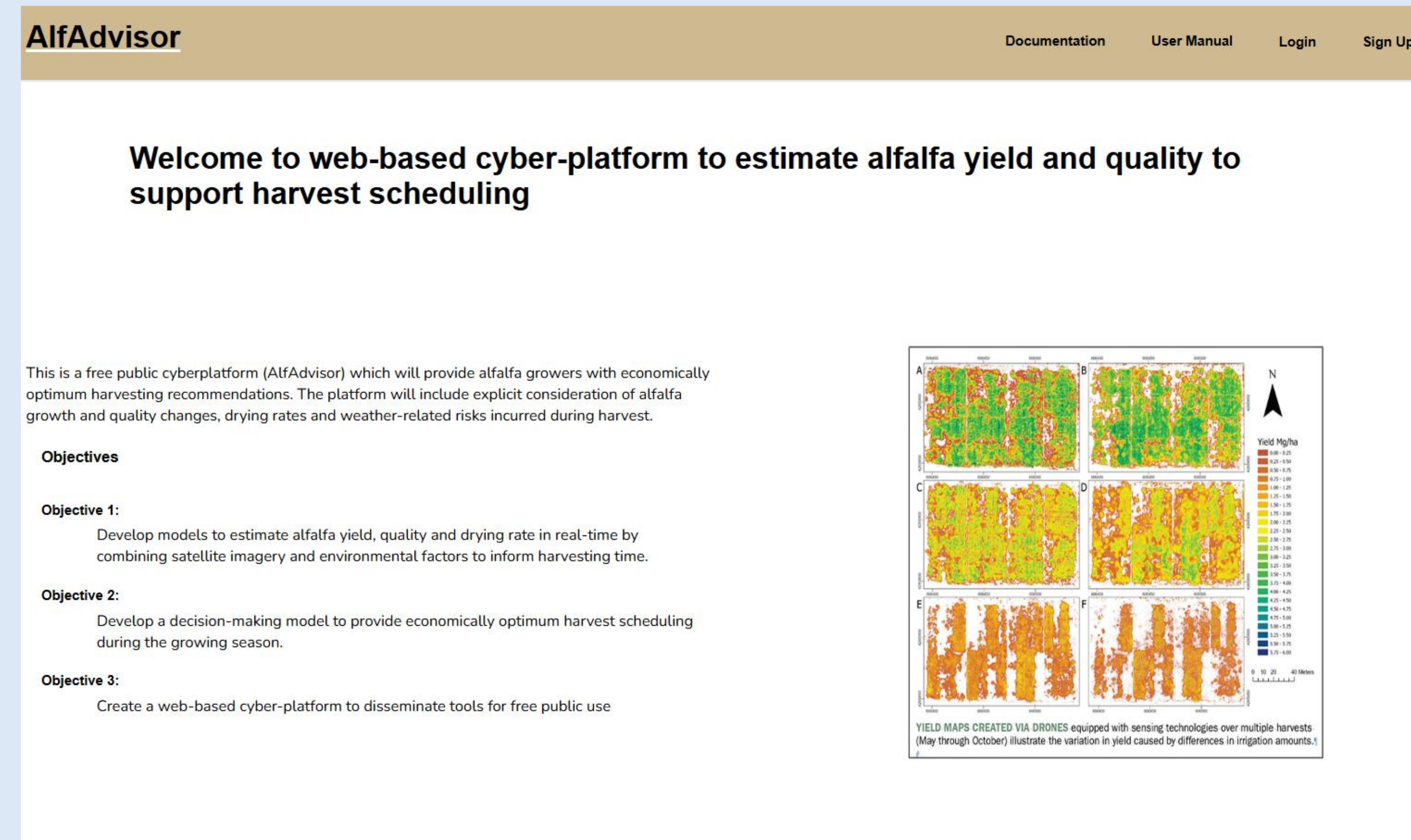


# AlfAdvisor: A web-based cyber-platform to estimate alfalfa yield and quality to support harvest scheduling



Zhou Zhang <sup>1</sup>, Matthew Digman <sup>1</sup>, Jerome Cherney <sup>2</sup>, Paul Mitchell <sup>3</sup>, Jinha Jung <sup>4</sup>, Jing Zhou <sup>5</sup>, Nicholas Gallagher <sup>6</sup>, Jiang Chen <sup>1</sup>, Fatemeh Azimi <sup>4</sup>, Tong Yu <sup>1</sup> and Diana Fares <sup>1</sup>  
 1. Biological Systems Engineering, University of Wisconsin-Madison, 2. Soil and Crop Sciences Section, Cornell University, 3. Department of Agricultural and Applied Economics, University of Wisconsin, 4. Lyles School of Civil and Construction Engineering, Purdue University, 5. Department of Crop and Soil Science, Oregon State University, 6. Department of Applied Economics, University of Minnesota.

AlfAdvisor is a free, publicly accessible cyber-platform that helps alfalfa growers make economically optimal harvest decisions. The tool provides user-friendly, science-based recommendations by explicitly incorporating crop growth & quality dynamics, drying rates, and weather-related harvest risks. It lets growers evaluate different cutting strategies and create harvest plans that match their individual risk preferences.



## Real-time Yield and Quality Traits Prediction Module

### 1. Yield and quality traits map

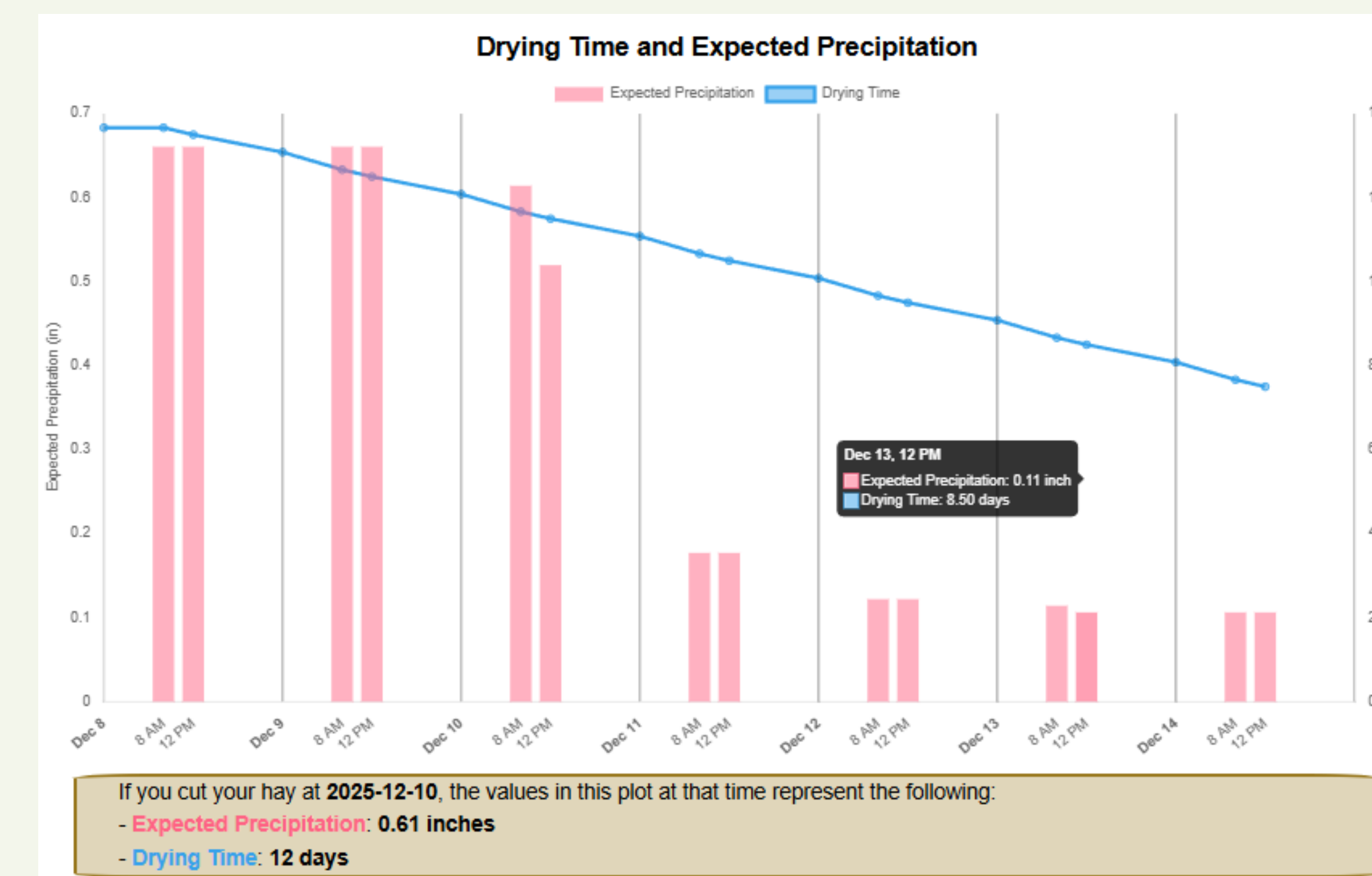


### 2. Statistic and trend of yield and quality traits



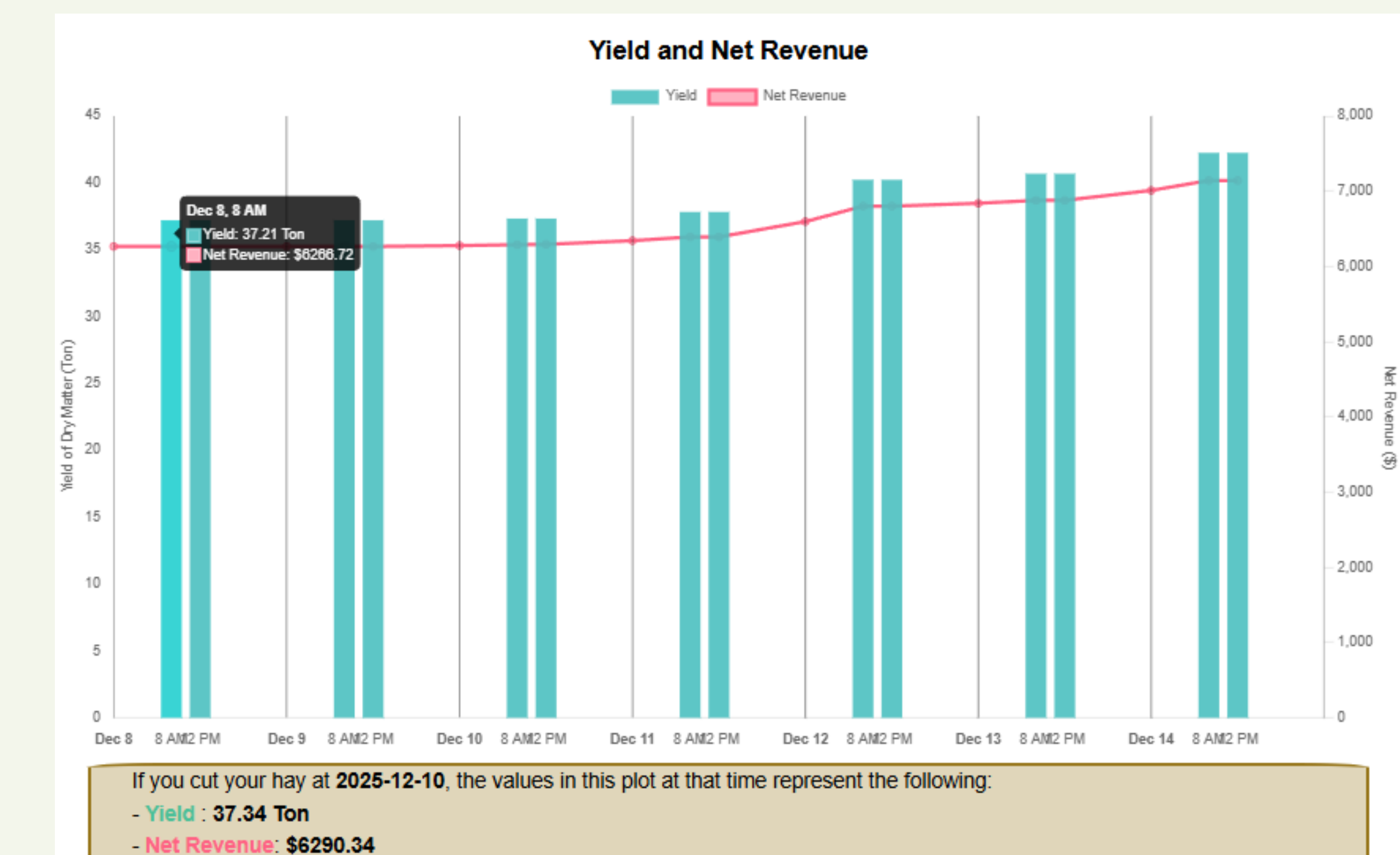
## Drying Rate Prediction Module

### 3. Drying time and expected precipitation for the next 6 days



## Economic Module

### 4. Predicted yield and net revenue for the next 6 days



## Farm/Field management

Manage user-defined farms and fields

Organize multiple farms and multiple fields within each farm

## Real-time Yield and Quality Traits Prediction Module

Integrating two satellite-based models and an air-temperature (Ta) driven model to generate the yield and quality traits maps for next 6 days. There are generally four cases:

Sentinel-1 only

Sentinel-2 only

Sentinel-1 and Sentinel-2

Ta only

## Drying Rate Prediction Module

Using predicted yield and quality traits together with weather forecast data, the model estimates the number of drying days, **the drying window**, required for alfalfa harvested within the upcoming six days, based on the Rotz and Chen (1985) model.

## Economic Module

Based on the predicted yield and quality traits and the estimated drying window, the **expected economic return** from harvesting alfalfa is calculated using the widely adopted Milk2016 method.

AlfAdvisor

## Access:

- To access the full function of AlfAdvisor, the model details, webtool tutorials, go to the link: <https://alfalfa.gdsl.org/> or scan the QR code
- The source code can be found: <https://github.com/gdslab/AlfAdvisor/tree/main>

## Acknowledgement

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## Reference

Rotz, C. A & Yi Chen. (1985). Alfalfa Drying Model for the Field Environment. Transactions of the ASAE, 28(5), 1686–1691. <https://doi.org/10.13031/2013.32500>  
 Undersander, D., Combs, D., & Shaver, J. R. (2016). Milk2016: Combining Yield and Quality into a Single Term. University of Wisconsin Madison Extension.

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