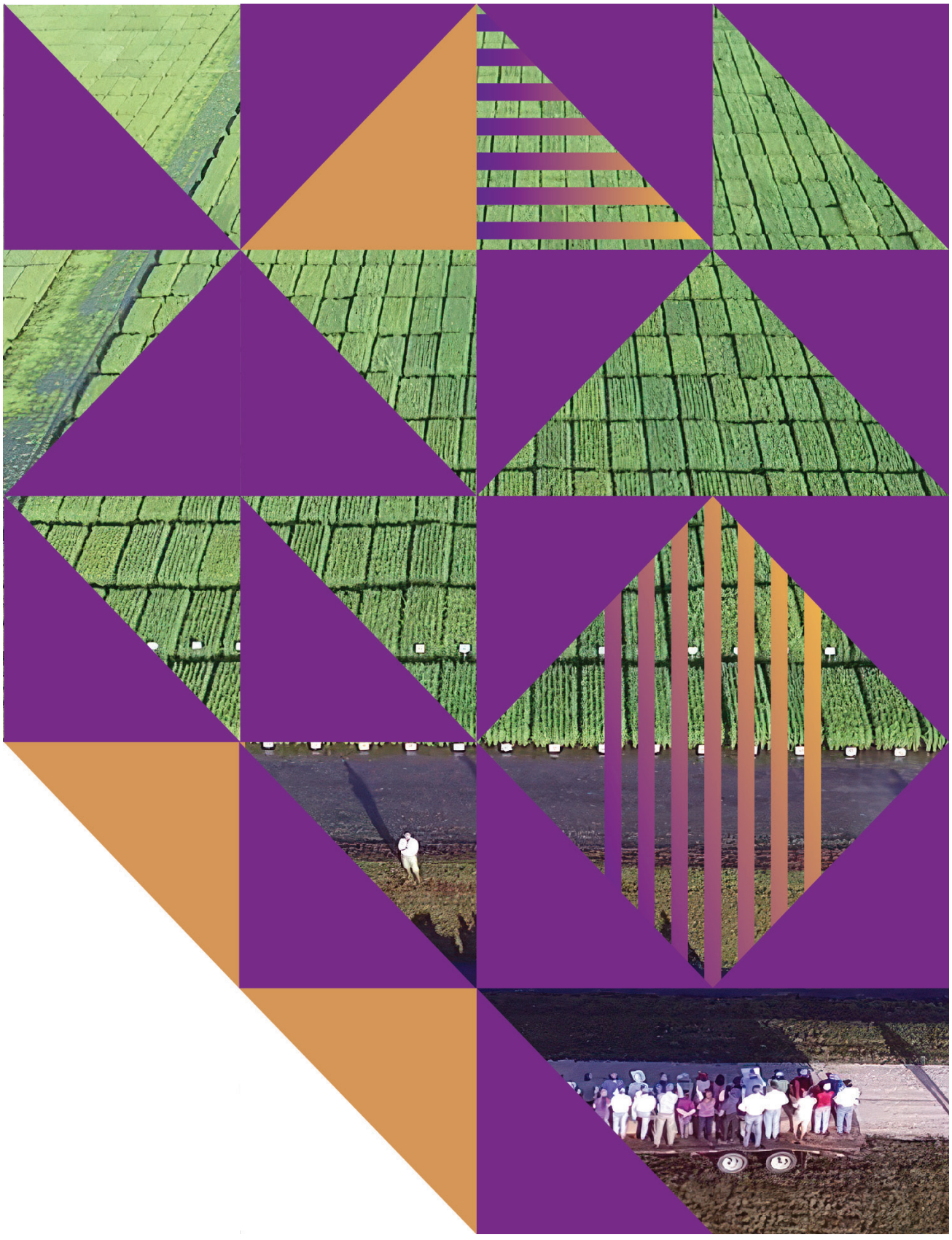
2024 INTERNATIONAL TEMPERATE RICE CONFERENCE



the same rates. Viand with 184 kgN.ha^{-1} mid-row banded at seeding yielded 12.96 t.ha^{-1} with very little lodging compared to 10.74 t.ha^{-1} and severe lodging with 184 kgN.ha^{-1} topdressed before permanent water. Nitrogen uptake at panicle initiation with mid-row banded N was 26 per cent less than with topdressed N, but it seemed that growth and yield formation after panicle initiation was greater with mid-row banded N.

In a repeat experiment with Viand in 2023-24, there was a similar result. The mid-row band was visibly intact just before permanent water. NDVI, N uptake, and biomass at panicle initiation with mid-row banded N were substantially less than with topdressed N. But, by anthesis, both biomass and N uptake with mid-row banded N were similar. Mid-row banding N again caused superior harvested grain yield, yield components, and much less lodging than pre-PW topdressed N at the same rates.

Mid-row banding appears to have a place in achieving high water productivity with high-yielding short-season, or other lodging-prone varieties, especially when combined with the on-farm efficiency gains of avoiding at least one topdressing event, and possible reduced ammonia and nitrous oxide emissions from avoiding topdressing.

Enhancing Rice Production and Income: Closing the Yield Gap through Technology Transfer in Uruguay

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The Uruguayan rice sector faced a severe crisis during the second half of 2010 decade, marked by poor international prices, high production costs, and stagnant yields. To address this, the Uruguayan Rice Farmers Association (ACA) spearheaded a national technology transfer project in collaboration with key stakeholders, aiming to narrow the yield gap among producers and elevate the country's average rice yields.

The project, initiated in the 2019-20 rice season, identified 10 essential management practices for achieving over 10 tons per hectare. These practices encompassed early soil preparation, optimal planting dates, high-quality cultivars, precise fertilization, effective herbicide application, strategic flood management, integrated pest management, and proper harvest. Leveraging the expertise of the Rice Research Program from INIA, Rice Millers Association (GMA), and the Latin American Fund for Irrigated Rice (FLAR), the project implemented a farmer-to-farmer transference program across the country.

Through demonstrative areas on reference producers' fields monitored by project technicians, the platform facilitated horizontal communication among producers. Over four years, the project validated technical proposals in commercial areas, covering 3,411 monitored hectares. Results demonstrated that the recommended practices consistently yielded over 10 tons per hectare, with no increase in costs.

Dissemination activities, comprising 71 field days and 20 results winter sessions, were central to the project. The producer-to-producer transfer method effectively reached less connected producers, fostering the adoption of high-yield management practices. The institutional alliance formed by ACA, INIA, GMA, and FLAR played a crucial role in achieving these results.

The project's impact was evident in the country's average yields, experiencing a notable upturn from 2019. Favorable climatic conditions and the timely release of the high yielding new variety INIA Merín added to successfully address its primary objectives by enhancing yields and narrowing the technological gap among rice producers.

Multispectral Signature of Different Rice Genotypes: A Powerful Tool for Precise Fertilization

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Nitrogen is a key element for plant development and yield; however, inefficient application can lower nitrogen use efficiency (NUE) due to denitrification, volatilization, and leaching. Additionally, overfertilization leads to environmental damage such as groundwater contamination and eutrophication. Rice (*Oryza sativa* L.), as one of the most important food crops, has thousands of varieties grown around the world, each with different crop development cycles and fertilization needs. Appropriate fertilization amount and timing are critical factors to achieve an optimal agricultural production while reducing environmental impact. In this context, the FERTISAT project seeks to enhance the efficiency of fertilization practices through the utilization of multispectral data obtained from satellites. In response to the imperative for improved nitrogen fertilization practices in rice cultivation, this study aims to monitor and optimize nitrogen application through satellite-based observations. The objective is to obtain a comprehensive understanding of growth and spectral response nuances among different rice varieties under non-limiting nitrogen conditions, with a specific focus on eight widely used and future-prospective rice varieties in Catalonia.

Two sowing methods were applied: dry seeding and wet seeding, both conducted at the Ebre Experimental Station in Amposta during the spring of 2023. The eight selected varieties were assessed under three high nitrogen fertilization levels to ensure non-limiting nitrogen conditions. These conditions ensured unhindered growth and attainment of representative high yields for each variety under these non-limiting nitrogen conditions. Data acquired from the drone-mounted MAIA camera, which captures information across the same nine wavelengths as those covered by the Sentinel-2 satellite, were used in this work. Measures were taken on six dates throughout the entire growth cycle, enabling an in-depth understanding of the response exhibited by each variety. Our research explored individual genotype behavior in diverse indices, extending beyond NDVI and NDRE. The comprehensive spectral and temporal extent of the data captured provides a nuanced perspective on the growth and varietal profile. This data will serve as basis for the characterization of the optimum potential of each variety.

The outcome of this study is expected to provide insights into the spectral behavior of different rice varieties in response to non-limiting nitrogen conditions. This information will facilitate