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Fonterra and BioLumic partner to bring light-activated seed traits to New Zealand dairy systems

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BioLumic, a pioneer in seed trait innovation, has entered a multi-year partnership with global dairy co-op Fonterra to develop a new category of seed traits for pasture-based dairy systems â?? traits that program the plantâ??s genetic expression rather than alter its genetics. The partnership will deliver light-activated traits designed to improve the productivity and resilience of ryegrass, starting in New Zealand.

â??This partnership signals a new era for forage innovation to supercharge pasture-based dairy systems,â? said Jeremy Hill, Chief Science and Technology Officer at Fonterra. â??Together, BioLumic and Fonterra are aiming to set a new standard for forage performanceâ??unlocking greater productivity with technology thatâ??s readily scalable.â?

Supported by Fonterraâ??s Ki Tua Fund, the collaboration combines BioLumicâ??s proprietary xTraitsâ?¢ technology with Fonterraâ??s deep farmer network and field validation expertise. Together, the two companies will accelerate the availability of practical, scalable solutions that address core productivity challenges in pasture.

Tackling the Productivity Gap in Forage Innovation

Pasture-based dairy systems are under increasing pressure to lift productivity while navigating rising costs, climate volatility, and regulatory constraints. Yet trait innovation in forage grass has failed to keep paceâ??constrained by the long timelines,

high costs, and regulatory hurdles of breeding and biotech approaches. Meanwhile, greater reliance on supplementary feed increases input costs and complexity.

â??The xTraits Platform uses precise light signals to program beneficial traits into seeds â?? without altering their DNA. Itâ??s a faster, natural alternative that works with the varieties farmers already trust,â? said Dr. Jason Wargent, Founder and Chief Science Officer at BioLumic. â??Weâ??re committed to practical, farmer-focused solutions that unlock more from every hectare.â?•

The initial focus is on productivity xTraits for ryegrassâ??targeted to enhance dry matter yield and metabolizable energy to improve forage performance, feed efficiency, and milk solids production. These traits can also be stacked with lipid-enhancing traits, which may help reduce methane emissions from enteric fermentation in cows, supporting more climate-smart dairy outcomes without impacting on-farm practices.

Trait development is already underway in BioLumicâ??s controlled environment trials, where early results have been promising. Field trials in partnership with Fonterra will begin in 2026, with a commercial product launch targeted for 2028. BioLumic is partnering with leading seed companies to activate traits in proven ryegrass varieties, requiring no change to existing seed or farming systems.

The partnership builds on BioLumicâ??s success activating xTraitsâ?¢ across multiple crops, including corn, soybean and rice programs, where the company is working with seed partners to unlock productivity and sustainability gains.