Laser Technology for Bird Deterrence: Proven Results in Utilities and Agriculture

Bird interference represents a persistent operational and financial challenge across electrical infrastructure and high-value agriculture. Traditional deterrence methods—such as acoustic cannons, chemicals and ultrasoud devices —often generate noise and environmental pollution, require continuous maintenance, or lose effectiveness over time as birds habituate. In recent years, automated laser technology has emerged as a highly effective, environmentally friendly, and non-lethal solution for bird control in professional settings.

Unlike conventional deterrent systems, laser technology operates silently and does not harm birds or disrupt surrounding communities. The moving laser beam is perceived by birds as a physical threat, triggering an instinctive flight response. Because the beam follows a continuously changing, pre-programmed pattern, birds do not habituate to it, ensuring sustained long-term effectiveness.

Scientific validation supports these field results. A notable study published on Nature.com titled *"Efficacy of an automated laser for reducing wild bird visits to the free range area of a poultry farm"* demonstrated significant reductions in bird activity. The research classified different bird families and evaluated behavioral responses over an extended period, concluding that automated lasers are highly effective at reducing wild bird presence without causing harm. Such peer-reviewed findings reinforce the growing body of global evidence supporting this technology.

Proven Performance in Electrical Utilities

A compelling real-world example comes from SAESA, a major electrical utility company in Chile. The company faced recurring operational risks caused by Bandurrias (southern lapwings), large birds with an approximate 32 inches wingspan and weighing around 3.7 lbs. Due to their size, these birds frequently caused short circuits when contacting energized components, leading to service interruptions and, in some cases, full electrical blackouts.

Bird excrement presented another serious issue. Its corrosive and conductive properties forced the utility to maintain an intensive insulator cleaning program to prevent flashovers. The financial impact included maintenance costs, service penalties, and reputational risk associated with outages.

In 2022, the utility initiated a pilot project installing two automated laser units to protect a 5 acres 220kV substation. The lasers were programmed to activate half an hour before sunrise and deactivate half an hour after sunset, aligning with bird activity cycles. Since birds rest at night, nighttime operation is unnecessary.

Within three months, the pilot demonstrated clear effectiveness in reducing bird presence. Based on these results, a full-scale implementation project has approved over subsequent years, ultimately acquiring 33 laser units that remain operational across multiple substations. The economic justification was clear: a single service interruption penalty can represent 50 to 100 times the cost of one laser unit, but the savings in cleaning alone paid the project.

Transforming Bird Control in High-Value Agriculture

The agricultural sector—particularly cherry production—has also seen substantial benefits from laser deterrence systems. As cherries ripen and develop their deep red coloration, they attract a wide variety of bird species. In heavily affected regions, growers can lose up to 70% of their production, often forcing them to sell remaining fruit in secondary markets at significantly reduced prices.

Historically, producers relied on air cannons. However, these systems typically cover only up to two hectares and generate considerable noise pollution. Birds also quickly habituate to repetitive acoustic deterrents, reducing long-term effectiveness.

Our latest laser model, by contrast, can protect up to 45 Acres or 20 hectares with a single unit in line of sight. Because the beam moves continuously in a programmed pattern, birds perceive it as a predator threat and immediately vacate the area. Field experience shows production loss reductions of approximately 70–80%, allowing farmers to reliably meet buyer contracts and financial obligations.