

SEA PLANTS ON LAND

Acadian Seaplants and the Nova Scotia Agricultural College are working together to enhance the usefulness of seaweeds as a crop fertilizer

When Acadian settlers in Atlantic Canada built dykes and planted crops, they turned to seaweed as a plentiful source of fertilizer; today many Atlantic Canadian farmers still use algae to promote crop growth. Despite its history, scientists still do not fully understand the subtle ways in which different seaweed products and species can benefit different crops. That is changing fast, thanks to one Nova Scotia-based company. Acadian Seaplants Limited (ASL) is collaborating with the Nova Scotia Agricultural College (NSAC) by sponsoring an Industrial Research Chair position. Plant Stress Physiology Research Chair Balakrishnan Prithiviraj, a plant scientist at NSAC, is studying marine plant bioproducts to see which components of seaweed extracts are able to improve agricultural-crop performance and productivity. The ultimate goal is to refine and produce made-in-Atlantic Canada plant-growth regulator products that can be marketed around the world.

Once Prithiviraj has identified the desired seaweed components—biologically active properties such as the stimulation of rapid growth and elongation—he will test them further using a variety of crops in an outdoor-field setting. “Although we know a product can do well in the lab, we have to be able to show it also can do well in various soil and climate conditions,” says Prithiviraj. “ASL will undertake worldwide research with a large variety of different crops.”

Over the past 25 years, ASL has developed into one of the world’s largest producers of marine-plant-derived products. Its five processing plants in the Maritime provinces use *Ascophyllum nodosum*, or rockweed, as the raw material for such value-added products as plant-growth regulators and animal-feed additives. The company even cultivates multicoloured salad “greens” for the Japanese market. ASL relies on 300 independent fishermen who responsibly and sustainably harvest the seaweed from coastal waters. The valuable source material is then processed into technical products, which are exported to 70 countries, making ASL the largest manufacturer of seaweed-based specialty products in the world.

To the uninitiated, the core business may appear low tech, but ASL is one of the most scientifically sophisticated marine-biotechnology companies in North America. Since its beginnings in



Balakrishnan Prithiviraj is taking lab testing into an outdoor-field setting.

the early 1980s, it has consistently invested between 5% and 10% of its annual revenue into R&D. ASL has eight PhD-level researchers on staff and owns and operates its own R&D Centre for Innovation in Cornwallis, N.S.

“I believe a large part of the credit for our annual gains in sales and consistent profitability is due to our focused technical and commercialization strategies,” says company president Jean-Paul Deveau. “Discoveries made in the laboratories are only the beginning. Our ongoing technical collaboration with NSAC has enabled our scientific discoveries to get to the commercialization stage and, ultimately, the marketplace. In fact, ASL has hired numerous NSAC graduates to help us commercialize the science.”

In addition to contract work, NSAC trains and recruits students specifically suited for companies such as ASL. The university’s focus on applied science and its hands-on approach to learning arms

graduates for both the practical and theoretical demands of work in industry.

The result has been several processes and technologies that are unique in the marine-plant industry. For instance, ASL has developed the world’s largest land-based seaweed-cultivation system for edible seaweeds and has created biological seaweed extracts for global agricultural and horticultural markets and technical products for animal feed.

“The partnerships we have developed with ASL serve as an excellent example of how NSAC uses its education and research capability to help build the economy of Atlantic Canada,” says NSAC president Philip Hicks. “As with the case of ASL, our long-standing close relationship with industry gives us the insight to add value to a wide variety of companies.” — TOM MASON

For more information, visit nsac.ca and www.acadianseaplants.com