

## Alice Group - Algaeponic Innovation

The two biochemical companies, Alice Algae Iceland and Svinna-Engineering Ltd have joined forces in developing an algaeponic system combining fish and/or crayfish in the aquaculture part of the system and microalgae in the hydroponic part. Alice has knowledge and experience in algae production and Svinna-Engineering in designing and running closed aquaponics systems with plants and fish/crayfish. The companies has formed a 50/50% Joint Venture company Samvist Ltd. The main objective of Samvist Ltd is to enhance resource efficiency in aquaculture systems by recycling nutrients, water and energy into new valuable processes and products instead of losing them as waste into the environment causing eutrophication.

The business case for the innovation is based on the circular economy principles, creating growth and new jobs by implementing resource effective (energy, nutrient raw material and water) novel methods for long-term sustainability. In aquaculture and livestock production effluent management are becoming a huge challenge. Aquaculture companies release high value nutrients to the environment, creating a negative environmental impact and wasting valuable nutrients, including nitrogen and phosphorus resources that could be used as fertilizers or as sources of valuable bio-products and/or bio-energy.

This will ensure a valuable contribution to the creation of sustainable value chains in the farming and processing sectors.

The innovation consists of the following:

- Integration of closed modern Recirculating Aquaculture System (RAS) technology and industrial algae production, thereby leading to the formation of highly efficient commercial production systems with optimum use of all resources.
- Using microalgae instead of plants in the hydroponic part of the system as in traditional aquaponics systems.
- Use of water from the fish culture into the algae culture as nutrition and also route the water after the algae separation back into the fish culture.

