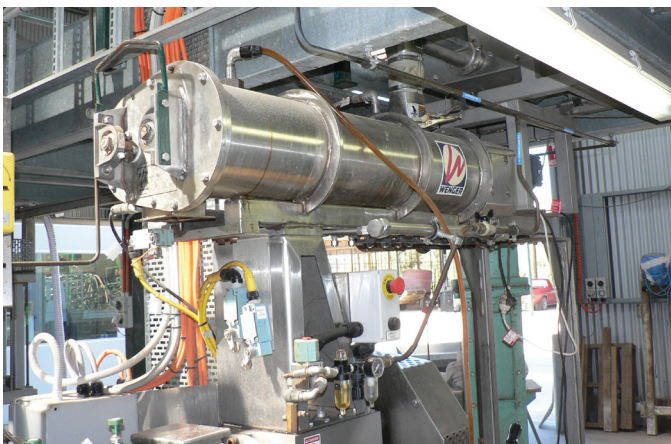
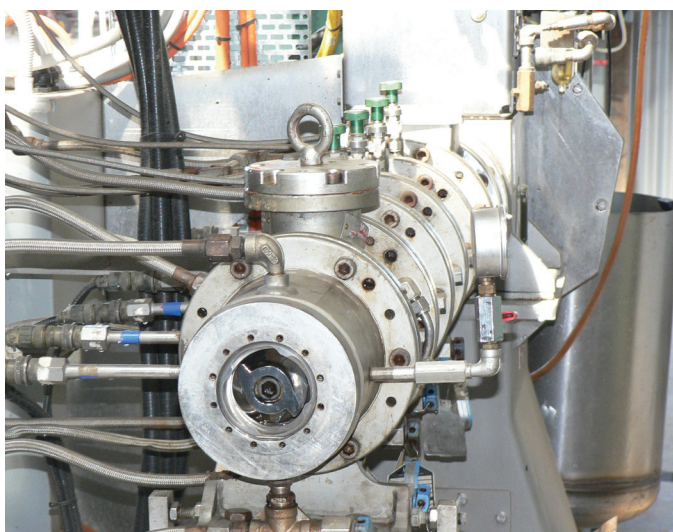


Growth in the Australian aquaculture sector and improvements in production efficiency in the more traditional livestock industries, has placed greater emphasis on the production of more sophisticated diets using technology such as extrusion. Extrusion involves the application of pressure to a material that is capable of flowing to produce a modified product. Most pet foods and aquatic foods are produced using extrusion, as are many human foods. Development of extruded livestock diets using commercial scale equipment is time-consuming, expensive and produces a large amount of waste.



Above: Preconditioner

Recognising the need to develop capacity in the production of extruded feeds for the aquaculture and livestock sectors, the South Australian Research and Development Institute, with support from Wenger Manufacturing Inc., Allied Industries Pty Ltd, UAS Industries, the Adelaide University and the Aquaculture CRC Ltd, established the Australasian Experimental Stockfeed Extrusion Centre (AESEC).



Above: Extruder barrel

Operational Objectives

The AESEC infrastructure assists the development of Australian aquaculture and livestock sectors by providing services in the following areas:

- Product development and core research
- Training
- Contract research
- Toll manufacture of non-commercial quantities of extruded feed
- Commercial facility hire
- Collaborative research and development



Above: UAS vacuum infusion system

Features

The AESEC comprises a Wenger X-85 extruder with preconditioner capable of producing between 100 and 600 kg/hr of product depending on the diet and barrel configuration. The equipment can be configured to accommodate production of 1.2 - 20 mm sinking or floating pellet diets. As little as 0.5 - 1 tonne of mixed ingredients is sufficient for use in pellet development processes, but production runs as small as 100 kg are possible once the process and extruder configuration has been defined. Complementing the extruder is a two stage, steam fired dryer and a single stage cooler. This leads to a UAS vacuum infusion system that can be used for micro-ingredient addition, pellet coating and the incorporation of fats and oils. Depending on the formulation, pellets can be produced with fat levels exceeding 30% using this system.

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