



Achieve **Higher Margins**  
from High-Growth Markets



## Plant Protein Concentrate Process



**Diversify into plant-based proteins with Crown's expertise.**

The global plant-based protein market is projected to reach \$14.32 billion by 2025<sup>1</sup>, including \$7.3 billion projected from the soy protein market<sup>2</sup>. In addition, the Food and Agriculture Organization of the United Nations (FAO) forecasts that in 2050 the global food demand, particularly for protein, will be twice the demand of 2013<sup>3</sup>.

With the increasing need to feed humans, animals and fish more sustainably, expanding your oilseed product portfolio with plant-based proteins is a forward-thinking strategy for our planet and your bottom line. Crown's proven Plant Protein Concentrate Process helps you achieve margins 10 – 20 times higher than commodity oil and meal products.

Don't miss this profitable opportunity. Leverage Crown's innovation to diversify into high-growth, high-margin markets.



# It's the right time to **expand** and Crown is the right partner

- The world's population is expected to increase by **2 billion** people to 9.7 billion in 2050<sup>1</sup>
- Land-use pressures and greenhouse gas concerns dictate the need for alternatives to animal-derived proteins
- Annual soy protein concentrate **projected growth is 5-7%**<sup>2</sup>
- Soy protein concentrate is widely used as a functional or nutritional ingredient in a variety of food products<sup>2</sup>
- Plant-based proteins are the most effective substitute for fish meal, allowing aquaculture producers to maximize yield<sup>2</sup>
- Soy protein concentrates are gaining increased adoption in the animal feed industry<sup>2</sup>

Crown's plant protein expertise runs deep. In addition to 70 years of experience in preparation, extraction and refining, Crown has provided custom engineered protein concentrate solutions and equipment for more than 50 years. Worldwide, Crown has completed 25+ projects for food, feed and aquaculture.

Whether you're entering the plant-based protein market for human consumption or animal feed and aquaculture, Crown's Plant Protein Concentrate Process enables you to produce protein concentrates from soy, rapeseed, canola and other oilseeds.

## Crown's Plant Protein Concentrate Process Advantages

### Unrivaled Uptime

- For larger capacities, the Crown Model III percolation extractor has long been the industry standard. Open profile screens with patented coating and redesigned screen wash system promote improved percolation.

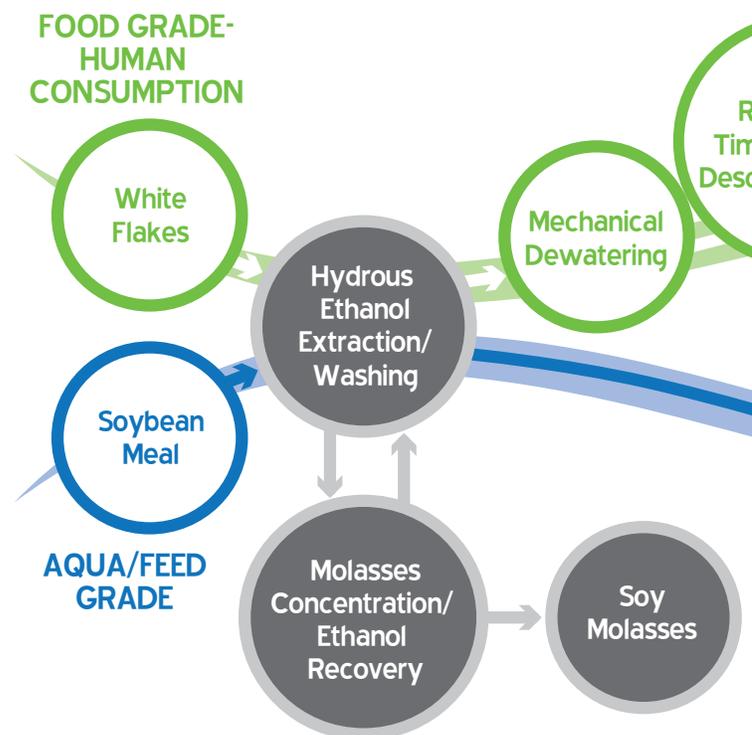
- For smaller capacities (<500 MTPD), the Crown Model IV immersion extractor is designed without screens, pumps, or hoppers. Consequently, cleaning requirements are eliminated.
- Patented Miscella Clean-up System improves uptime and yield
- Distillation system is designed such that no evaporation takes place inside the tubes – fouling potential is minimized

### Lowest operating cost

- Zero effluent during production, all recovered water in the process is recirculated
- Minimal ethanol loss – essentially all ethanol is recovered. Recovered ethanol is clean and continuously re-used in the process.

### Highest quality protein concentrate product

- Efficient extraction technology with consistent product output yields the highest protein content
- Soy protein concentrate produced at Crown plants is considered the industry standard
- Capacity up to 1,000 MTPD+



## Full lifecycle support

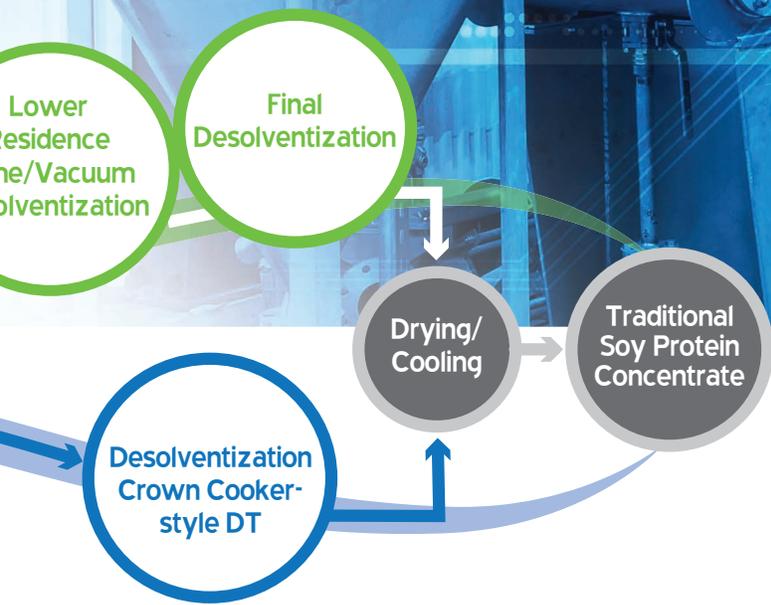
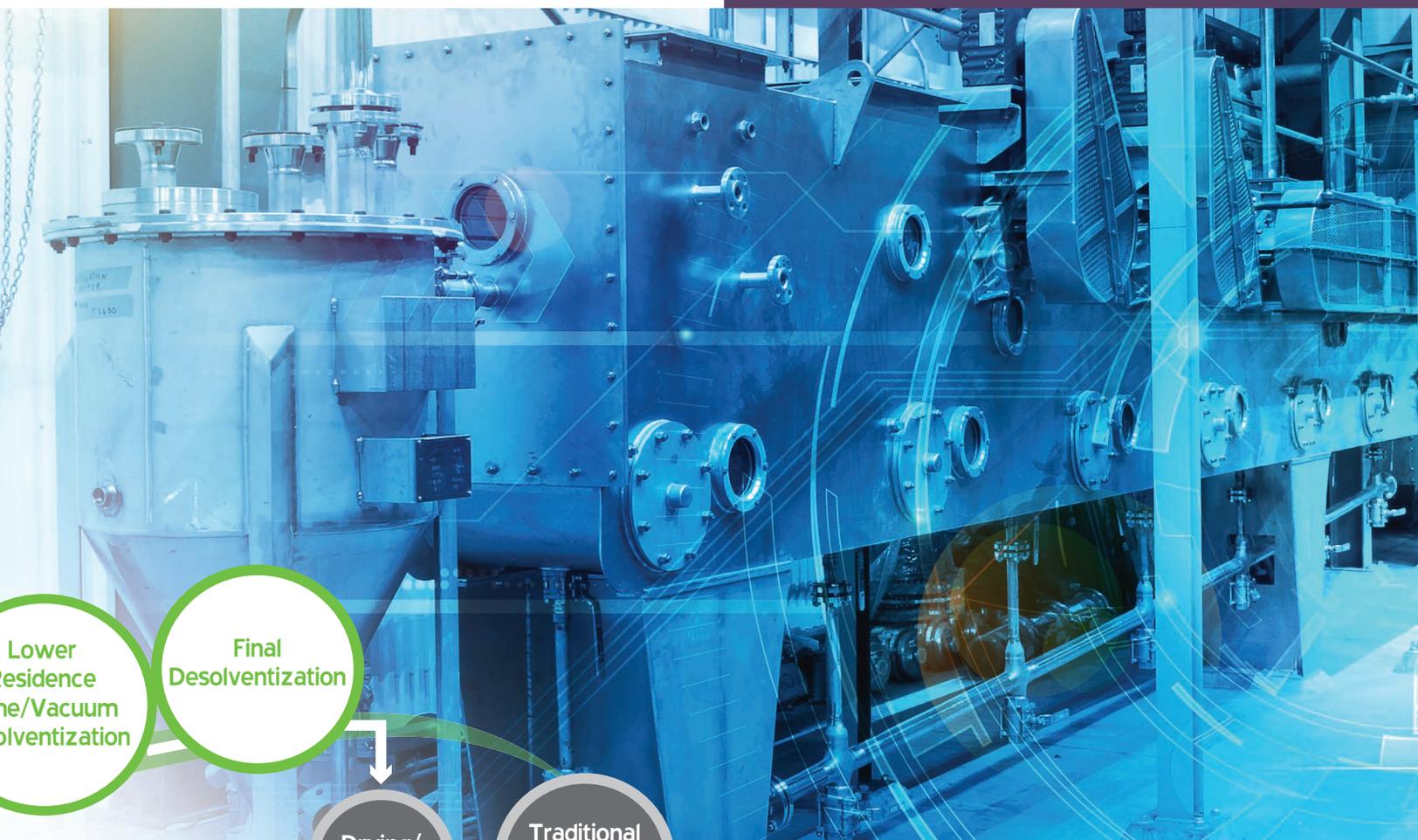
- Complete process solution tailored to your needs
- Pilot testing at Crown's state-of-the-art Innovation Center
- Training, Field & Aftermarket services

## Extensive experience/Global availability

- 25+ completed projects worldwide for Food, Feed and Aquaculture
- Execute a project anywhere in the world with Crown's global reach

## Crown's immersion extraction technology delivers unmatched performance

- Engineered equally well for fine materials (>400 microns) as for coarse materials — eliminates pre-screening
- No circulation pumps
- No hoppers to clean



- Crown Model IV immersion extractor provides lowest electrical consumption due to small extractor drives and no circulation pumps
- Data indicates that a lower solvent-to-flakes ratio could potentially be used compared to a percolation extractor. This could translate to a steam saving of up to 20%.



## Our first-to-market innovation is your opportunity

### Rapeseed/Canola Protein Concentrate

Offering the first fully developed, commercial scale, continuous process in the market.

- Our novel dehulling system maximizes protein in rapeseed/canola protein concentrate or rapeseed/canola meal
- Crown's proven expertise in soy protein concentrate technology is the foundation for our rapeseed/canola protein concentrate process

## For emerging and existing markets, Crown delivers end-to-end solutions.

When opportunities emerge, count on Crown's expertise and state-of-the-art Innovation Center to help identify new revenue streams and bring them to market faster. Our 15,000 square foot fully functional plant offers controlled, confidential piloting—enabling you to test new products and processes prior to implementation. Tap into our deep process engineering knowledge to diversify your product portfolio with improved operational efficiency and capacity. Apply our trainings to increase safety and productivity.

Whether modifying an existing facility or building from the ground up, Crown's full-scale support throughout the plant lifecycle includes comprehensive aftermarket services, problem-solving expertise, superior parts and on-site support where and when you need it. When you partner with Crown, your operation is designed and equipped to seize more market share and profitability every step of the way.



<sup>1</sup>Transparency Market Research report. (Aug. 2019) Plant Based Protein Market by Type (Soy Protein, Wheat Protein, Pea Protein, Potato Protein, Rice Protein, Corn Protein) and Application (Foods and Beverage, Animal Feed, Nutrition and Health Supplements, Pharmaceuticals) - Global Forecast to 2025.

<sup>2</sup>Transparency Market Research report. (Dec. 2019) Soy Protein Market by Type (Soy Protein Concentrates; Soy Protein Isolates; Textured Soy Protein; and Soy Flour, Grits, and Chunks), Application (Food and Beverages, Animal Feed, and Others), and Geography—Global Forecast to 2025.

<sup>3</sup>United Nations report: The World Population Prospects 2019.

Capture more revenue from your oilseeds with Crown's Plant-based Protein Concentrate Process.



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