

NCP OILSEED PROCESSING PILOT PLANT

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There are very few toll processors can perform small-scale processing of oilseeds, oils, and co-products in one location and none is situated in the Midwest. In the past, our pilot-scale trials were conducted in different facilities in the US and Canada. To address this limitation, the NCP pilot plant was established to consolidate all our processing needs here at NCAUR. This pilot plant has been particularly useful in establishing processing parameters for new oilseed crops like lesquerella, cuphea, pennycress, coriander, and milkweed. Oils and other materials from the seeds have been produced to supply the needs of our research and development, production, and product testing efforts, as well as those of our collaborators.

The pilot plant has screeners, aspirator, and gravity table for seed cleaning and density-grading. We also have various milling equipment for dehulling, cracking, flaking, and grinding seeds. Seed cooking and drying before pressing may be accomplished by using a steam-heated three-deck seed cooker/conditioner or an extruder. Oil extraction is performed by using a heavy duty laboratory screw press. The 100-gallon per batch oil refiner is equipped for degumming, bleaching, and deodorizing of the oil. The oil may be refined by neutralizing the free fatty acid with caustic or by stripping it with steam during deodorization. A 1-gal deodorizer is also available for lab-scale trials.

Additionally, we also have available 5- and 50- gallon glass-lined reactors for scaling-up lab chemistries, a three-phase high speed centrifuge, and ultrafiltration and reverse osmosis filters for separation and recovery of value-added co-products from seeds.

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