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Breeding for Long Chain Omega-3 Oil Canola

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Long-chain omega-3 fatty acids like eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) are highly desirable due to the numerous health benefits attributed to long-chain omega-3s, not only for humans but also for fish who, through aquaculture, are often fed fish-derived EPA and DHA. Currently, most long-chain omega-3s are heavily sourced from fish stock. A plant-based source of long-chain omega-3 fatty acids is highly desirable to relieve pressure on fish stocks. A crop like canola would open up a new, plant-based route to long-chain omega-3s. Cargill (Minneapolis), has been working on omega-3 canola development. In 2016, Cargill announced it is working with BASF (Ludwigshafen, Germany) to develop canola oil rich in EPA and DHA. it "could give aquaculture farmers a more sustainable way to raise fish rich in EPA/DHA omega-3 fatty acids" and "provide an alternative to using fish oil in aquaculture feed and could ease harvest pressure on wild fish populations that currently supply much of that oil." This presentation will outline how Cargill breeding superior yield hybrid canola with long chain omega-3 fatty acids and increase omega-3 content via genetic and agronomic practices.