

Title Dry processing of oats – Application of dry milling
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Abstract

A dry milling strategy has been developed for separating oats into bran-rich and starch-rich fractions. For the first time, this process combined the benefits of oat pearling with the efficiency of break and reduction milling and sifting to allow production of flour and bran fractions from an oat cultivar of high lipid content. The bran-rich fraction complies with the separation ratio and chemical composition of the AACC's definition for oat bran. Oat cultivars with a lipid content below 10% (db) can be dry milled by the process developed in this study. The roll disposition, roll gap and the speed differential of the corrugated and smooth rolls together with the aperture size of the sieves for flour separation were the important parameters that determined the milling and separation efficiency of this oat dry milling process. Critical settings of these parameters included a roll disposition of dull to dull, a roll gap of not larger than 0.1 mm, and a sieve aperture size of 212 μm for flour separation. A pearling step as short as 5 s prior to roller milling effectively removed all the trichomes from the surface of two cultivars of naked oats. This would significantly reduce the health hazards arising from trichomes during oat dry processing.