

Nutritional and sensory characterization of semi-intensively and intensively grown beef

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Cattle production may occur under extensive, intensive or semi-intensive production system. Extensive production is characterized by grazing in a large land area and is sought for improved animal welfare. Intensive production is based on concentrate feeding and low available area per animal. Semi-intensive or semi-extensive production combines features of both systems. This work was developed in the framework of the ModelMeat project which aimed to create a decision support tool for integrated sustainability management in extensive livestock production. Chemical and sensory characterization of beef from extensive, semi-intensive and intensive systems were performed. A consumer study comprising an in-home sensory analysis was also conducted. Consumers were asked to prepare two beef steaks (one from extensive system and another from semi-intensive system) and score overall liking, appearance, odour, taste and texture. An online questionnaire was also performed in order to understand consumers beef preferences regarding to beef quality, animal welfare and price. A total of forty two samples of beef were collected from controlled producers and chemically analysed. Semiintensively grown meat had, on average, higher moisture content and lower total fat content than intensively produced meat. Ash and total protein contents were not different between the production systems. Semiintensively grown beef showed a trend to have lower saturated fatty acids content and higher monounsaturated fatty acids content than intensively grown beef. In-home sensory evaluation consumer test (N=113) did not reveal significant differences between semiintensively and extensively grown meats for any of the attributes evaluated. Consumer online questionnaire indicated that taste was the most important factor for quality beef, scored with mean of 6.4 out of 7. In moment of purchase, the appearance and the previously knowledge about the meat were the most important choice factors, scoring 6.3 and 6.0, out of 7, respectively. The lowest score (mean 4.8) was observed relatively to fair price of extensively grown beef. Fundo Europeu de Desenvolvimento Regional (FEDER), through the Programa Operacional Competitividade e Internacionalização (POCI) under the project ModelMeat: Modelo de Optimização de Ambiente e Qualidade do Produto para Serviços de Apoio à Competitividade dos Agentes da Fileira da Produção Animal Extensiva (POCI-01-0247-FEDER017630).

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