An experiment was designed to evaluate the effects of DDGS and split marketing cuts in a commercial swine facility on growth performance, fat quality and the relationship between iodine value (IV) determined by three methods in belly and jowl fat. Forty pens with 22 pigs per pen were raised in a commercial grow finish facility. Pens were randomly allotted to diets containing 0 or 20% DDGS and chosen for one of three marketing cuts removing 4, 8 and 10 head from each pen. Belly and jowl fat samples were collected 1 day postmortem from chilled carcasses in a commercial slaughter facility. Growth performance was unaffected by the inclusion of DDGS in the diets of growing and finishing hogs. However, marketing cut changed growth parameters, specifically ADG of pens in the second cut. By removing the fast growing, early maturing hogs in the first cut, feeder and floor space expanded, allowing the remaining hogs to more closely meet their genetic potential. The genetically superior animals grew faster and gained more thereby surpassing the slow growing, late maturing hogs left in the third cut. Fatty acid composition is more saturated in pigs fed the control corn diet, while pigs fed 20% DDGS, have a greater proportion of unsaturated fatty acids. DDGS inclusion increased IV in belly and jowl fat regardless of IV determination method. Correlations suggested methods may rank samples equally, but do not provide the same absolute IV. Belly fat had a lower IV (P<0.01) compared to jowl fat using titration or GC IV methods suggesting pigs have varied degrees of physiological maturity at specific fat depots during the finishing phase. In conclusion, feeding 20% DDGS negatively affected fat quality, but not growth performance and marketing time changed growth performance.