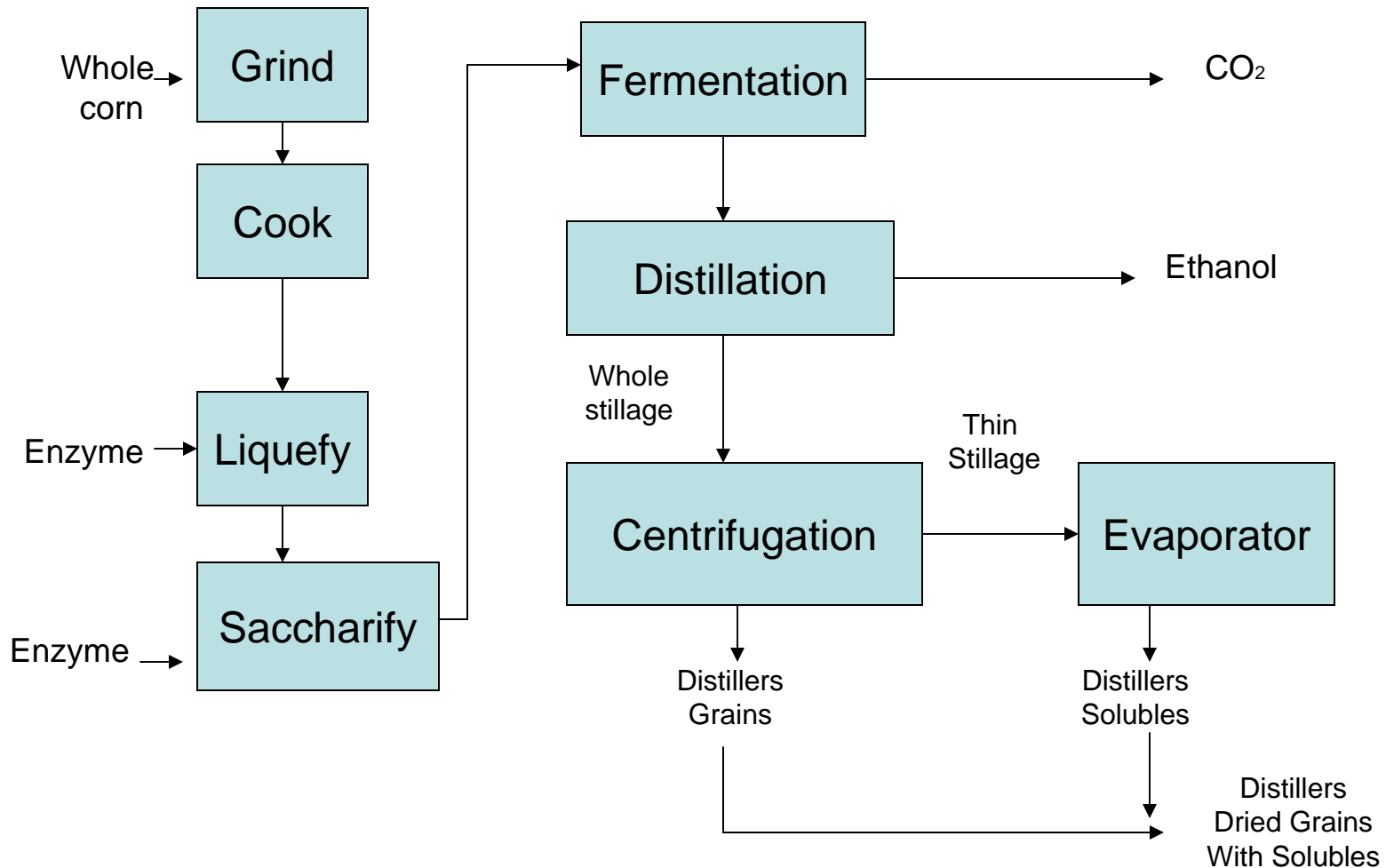


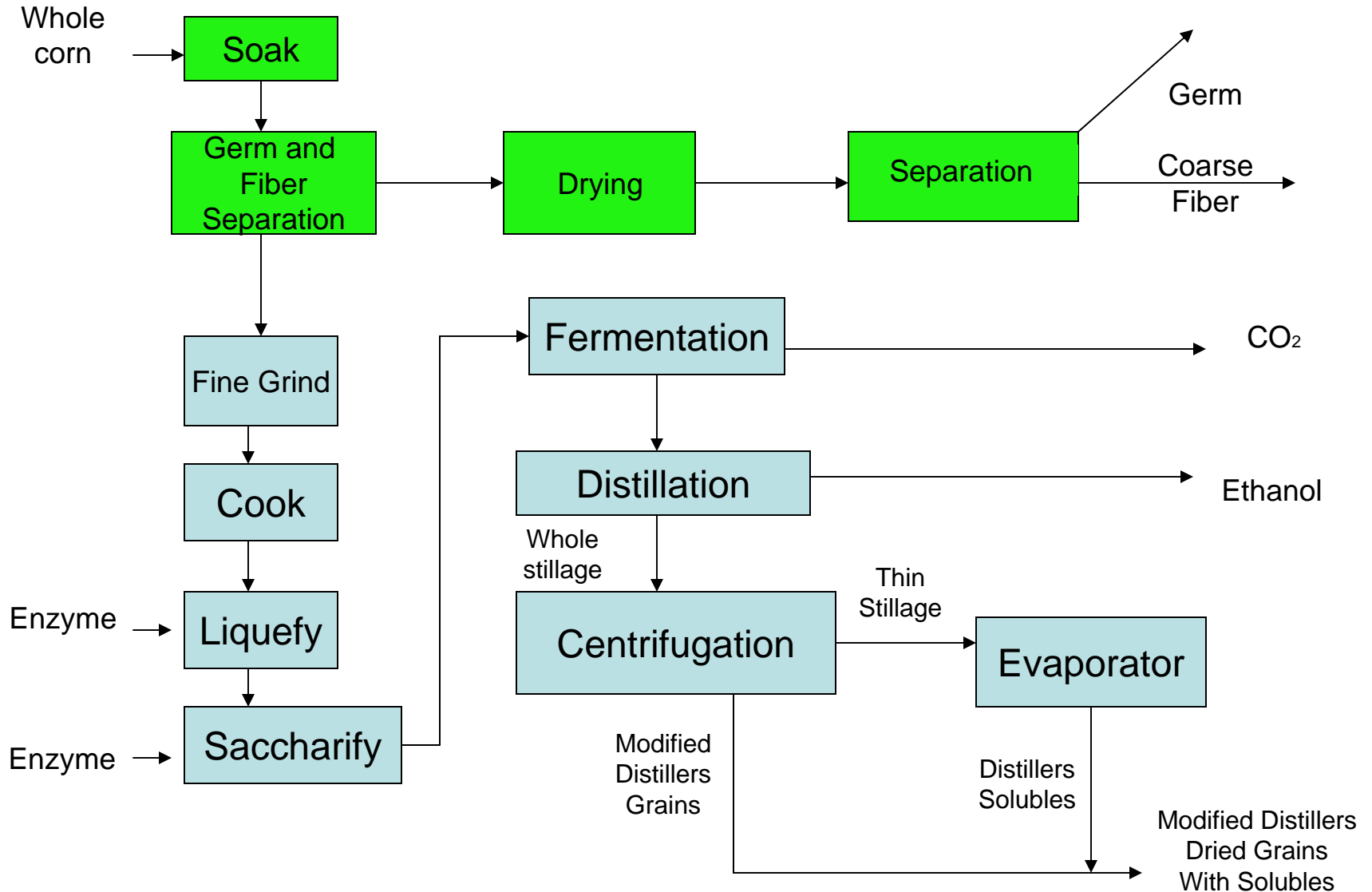
Quick Germ/Quick Fiber

Patented Enhanced Fractionation

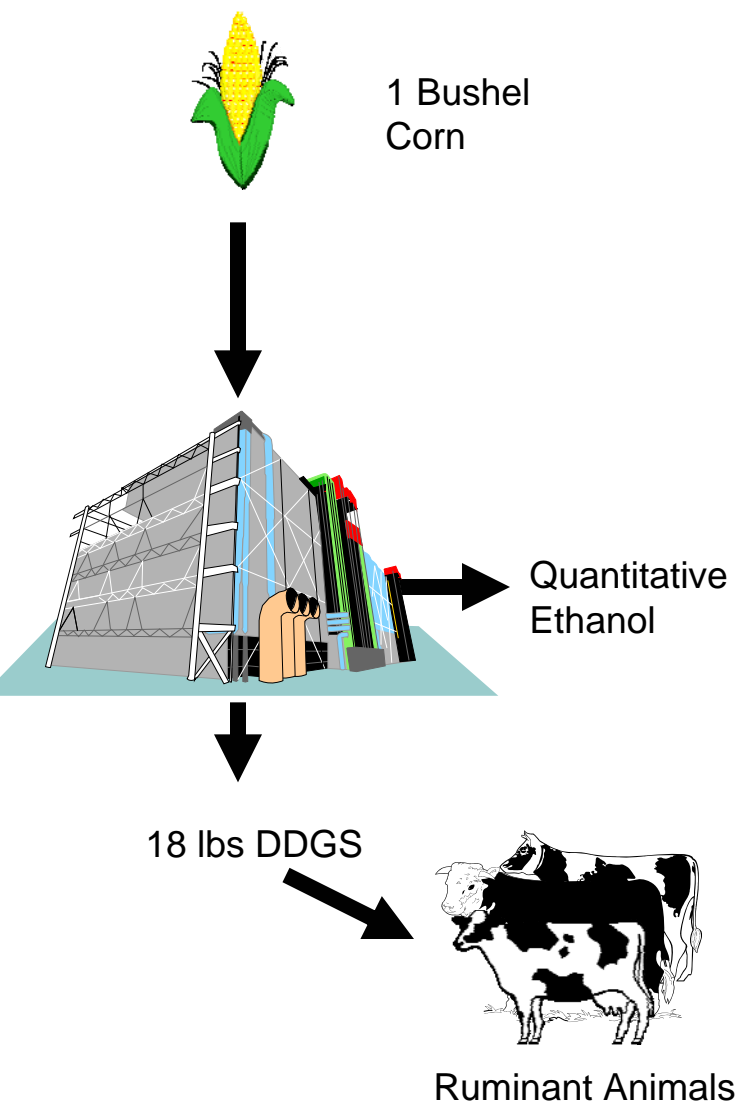
A schematic of the conventional dry grind ethanol process



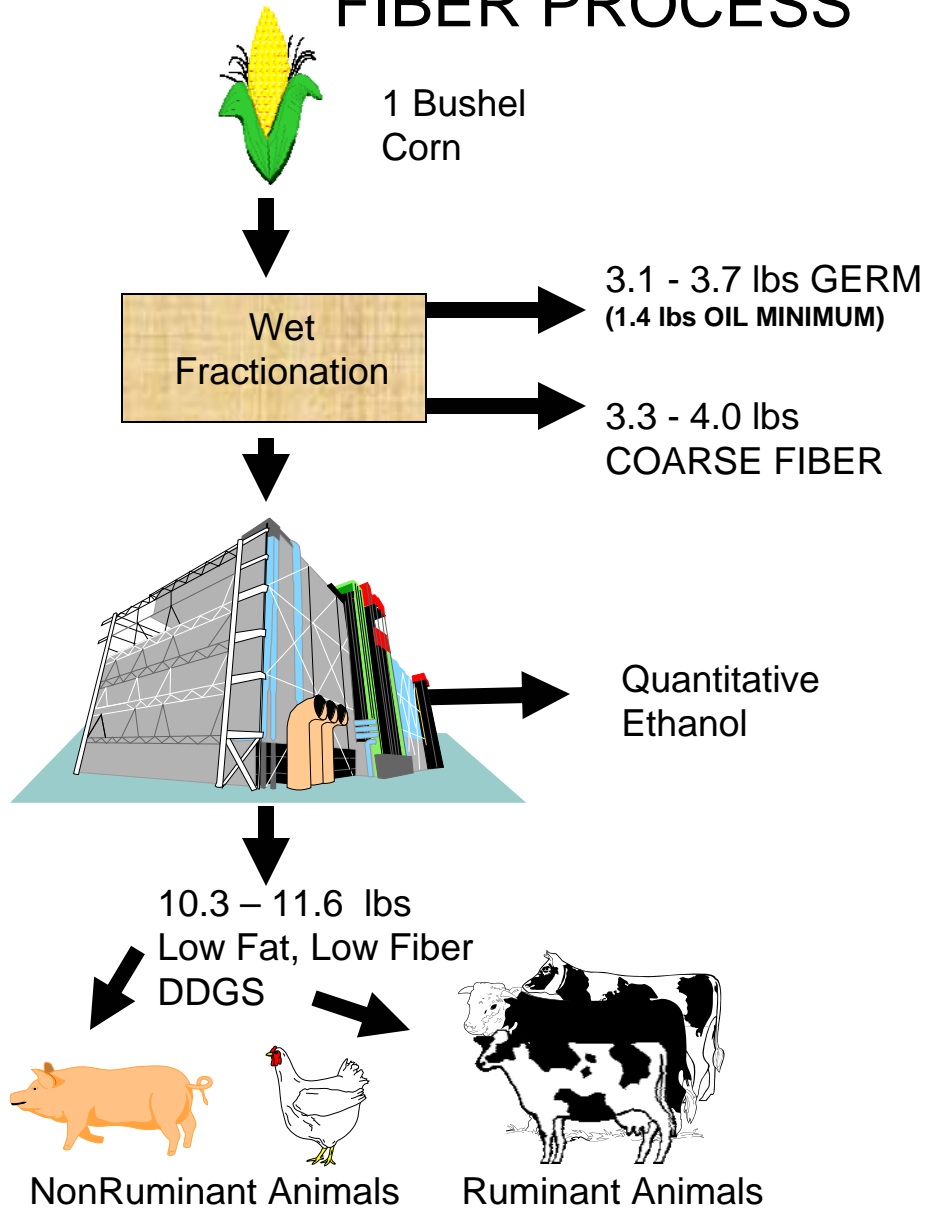
A schematic of the modified ethanol process with germ and fiber recovery



DRY GRIND ETHANOL PROCESS



QUICK GERM/ QUICK FIBER PROCESS



Adapted from: Vijay Singh. 2006. *Past, Present and Future of Dry Grind Corn Process*, Bioenergy Symposium, Purdue University, Feb.23. (Used with Permission)

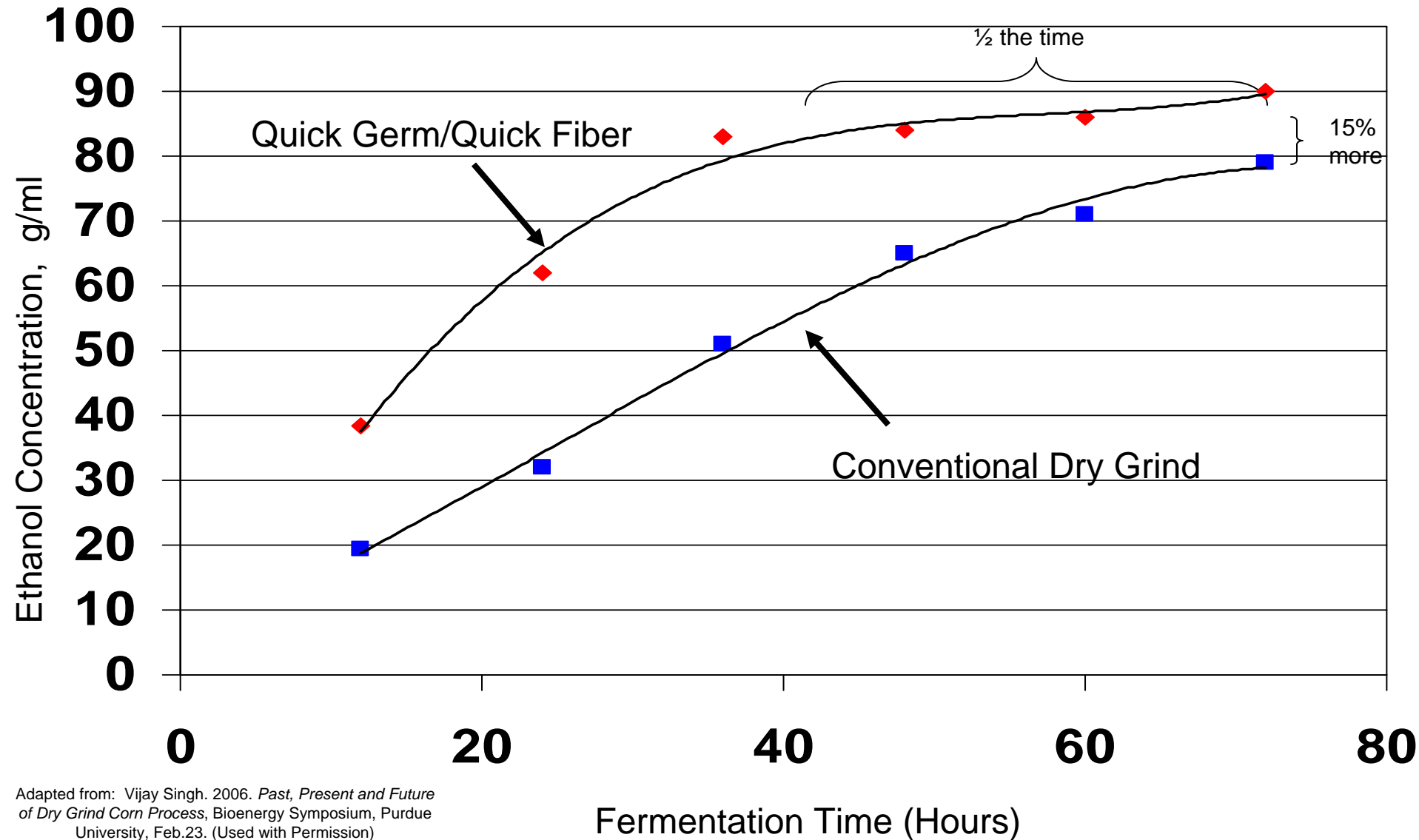
QQ Enhanced Fractionation Advantage

- Increased fermenter capacity
- Increased coproduct value
 - Germ for food grade oil (pressed or sold)
 - Distillers solids
 - Higher protein
 - Lower fiber
 - Low fat
 - More suitable for non ruminant feed

QQ Enhanced Fractionation Advantage

- No additional water used
- Wet mill quality germ (minimum 38% oil)
- Maximum 3% loss of starch with coproducts
- Increased protein content in DDGS
- Decreased oil content in DDGS
- Decreased fiber content in DDGS
- Decreased fermentation time
- Increased ethanol concentration in the beer

FERMENTATION RESULTS FOR QUICK GERM/QUICK FIBER FIBER PROCESSES AND CONVENTIONAL DRY GRIND



Adapted from: Vijay Singh. 2006. *Past, Present and Future of Dry Grind Corn Process*, Bioenergy Symposium, Purdue University, Feb.23. (Used with Permission)

DDGS Nutrient Analysis

	Dry Grind	QG/QF	Soy Meal	Corn Gluten Meal
Crude Protein (%)	28.50	49.31	53.90	66.70
Crude Fat (%)	12.70	3.85	1.11	2.77
Ash (%)	5.32	3.24		3.62
ADF	10.80	6.80	5.95	6.88