

## Mashing Temperatures

Temperature	Activity	Duration	Effects
35'C	Phytase <b>ACID REST</b>	Up to 2 hrs.	Lowers pH, makes more acidic
50'C	Proteolysis <b>PROTEIN REST</b>	15 min.- 1 hr.	Proteins broken into amino acids
60'C	Beta-amylase starch conversion into sugar	20 min. - 1 1/2 hr.	Produces a highly fermentable wort (thinner beer)
65'C	Alpha & Beta- amylase equally active	20 min. - 1 1/4 hr.	Produces wort with both fermentables and nonfermentables
70'C	Alpha-amylase starch conversion into dextrins (unfermentables)	20 min.- 1 hr.	Produces a wort high in unfermentables (more body)
76'C	Amylase activity stopped	5 - 15 min.	Aids in liquefying wort for better run off
77'C	Sparge Water temperature	30 - 60 min.	"Washes" sugar from grain bed, but too high temp could extract tannins

