THE THELEN RESERVE

AMERICAN WHISKEY: GRAIN TO GLASS

PART 1 OF 2 · GRAIN TO SPIRIT

Follow a grain recipe through fermentation and distillation to clear new make.

01 · GRAIN & RECIPE



Corn, rye, wheat and malted barley

WHAT HAPPENS	WHY IT MATTERS	WHAT CHANGES
The mash bill sets the grain proportions. Bourbon uses at least 51% corn. Rye and wheat whiskey use at least 51% of their named grain.	Grain gives the spirit its starting character. American single malt uses 100% malted barley.	Separate grains become a measured recipe.

02 · MILLING THE GRAIN



The roller mill

WHAT HAPPENS	WHY IT MATTERS	WHAT CHANGES
A mill breaks whole grain into smaller particles, exposing its interior to water.	The useful grind depends on the grain and whether the distiller will drain the wort or keep the grain.	Whole kernels become meal or grist.

03 · COOKING & CONVERSION



The mash cooker

WHAT HAPPENS	WHY IT MATTERS	WHAT CHANGES
Water and heat make starch accessible. Enzymes break it into fermentable sugars. The mash or wort cools before yeast is added.	Yeast can use the new sugars. The cooking sequence depends on the grains.	Meal and water become sweet mash or wort.

04 · FERMENTATION



The fermenter

WHAT HAPPENS	WHY IT MATTERS	WHAT CHANGES
Yeast consumes sugars and produces alcohol, carbon dioxide and aroma compounds. Some recipes carry the grain solids forward.	Yeast strain and fermentation conditions shape the flavors that reach the still.	Sweet mash or wort becomes distiller's beer.

05 · DISTILLATION



Column still and doubler

WHAT HAPPENS	WHY IT MATTERS	WHAT CHANGES
Pot, column and hybrid stills concentrate the alcohol made in fermentation. Vapor rises, then cools back into liquid.	The grain-named types and American single malt are distilled at 160 proof or less. Light whiskey is distilled above that limit.	Distiller's beer becomes concentrated distillate.

06 · NEW MAKE & SELECTION



Collecting clear spirit

WHAT HAPPENS	WHY IT MATTERS	WHAT CHANGES
The distiller collects spirit with the desired character. Batch pot runs and continuous systems select it in different ways.	The new make already carries aromas from the grain, yeast and still.	Clear spirit is ready for its next route. Oak develops color later.

TWO ROUTES THROUGH THE MASH HOUSE



ON THE GRAIN

Many American distillers ferment with the grain solids present. The grain can travel with the beer to the still.



OFF THE GRAIN

Other producers separate the sweet wort from the spent grain before fermentation. The choice helps determine the grind.

THE TRANSFORMATION

WHOLE GRAIN → MEAL → SWEET MASH OR WORT → DISTILLER'S BEER → CLEAR SPIRIT

Continue to Part 2, Oak to Glass.

SELECTED REFERENCES

[1] U.S. standards of identity, 27 CFR § 5.143.

[2] TTB, American Single Malt Whisky standard of identity.

[3] Kelly et al., Beverages 9, 64 (2023).

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Understand the craft. Explore the flavor.