

## TEQUILA PRODUCTION

Harvesting the agave plant remains a manual effort, unchanged by modern farming technologies, and stretching back hundreds of years. The agave is planted, tended, and harvested by hand. The men who harvest it, the "jimadors", contain generations of knowledge about the plants and the ways in which they need to be harvested.



N., The jimadors must be able to work swiftly in the tight rows, 1- pull out the pups without damaging the mother plant, clear the pinas (Spanish word for pineapple), and decide when and if each plant is ready for harvest. Too soon and there are not enough sugars, too late and the plant will have used its sugars to grow a qurote (20-40 foot high stem), with seeds on the top that are then scattered by the wind. The pinas, usually weighing 80 to 200 pounds, are cut away with a steel-tipped tool similar to a hoe (called a coa).



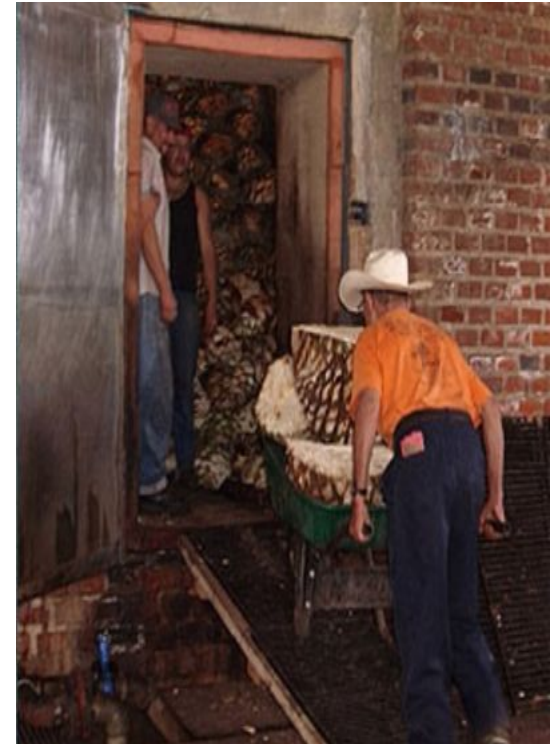
A skilled jimador can harvest over 900 kilos of piias daily, loading and hauling them by truck to the factory where they are cut into halves or quarters for baking. 11, .4; Rafael, Jimador at Tres Mujeres Distillery in Amatitan, Jalisco (pictured 44 y here), explained that he harvests about 80-100 agaves daily. Rafael earns about \$25 in a seven-hour day harvesting as much as 3 tons of pinas. It takes about 7 kilos of piia to produce 1 liter of 100% agave tequila.

Of the distilleries , method was by far the most common process being used.

The piias are slow cooked in a steam room or traditional oven (called a horno) for about 24-36 hours. At less than 200 degrees Fahrenheit (90-95 C), the slow cooking process reduces caramelizing which can add bitter flavor and reduce the precious sugars while maintaining much of the natural agave flavor. The cooking breaks down the fibers and releases the natural juices



Another piece of equipment now being used by many manufactures to cook the agave piiiias is the autoclave. The autoclave acts as a huge pressure cooker. The autoclave method reduces the cooking time to about 18 hours. The idea is to cook the agave hearts slowly to convert the starch to sugar. Both the autoclave and horno ovens are heated with steam created by large steam generators known as "calderas". These calderas also provide steam to heat the pot stills and /or column -T `stills for distillation. The cooked pinas are then air-cooled for 8-24 hours before `entering the next stage of the process. Once cooked, the pinas are transferred to shredders that extract the precious . juices called "mosto". Some companies use a five-stage mechanical press system while other smaller operations may use a one-stage system, or something in between. Water is introduced to the shredding process to help extract the sugars from the agave fibers.



The old (traditional) style of manufacturing tequila using the tahona stone is labor intensive and time consuming. Most manufacturers have discontinued use of the tahona. These wheels, weighing about two tons, are pulled by mule to crush the agave fibers. Many experts believe the tahona method yields a better product, thus some producers have maintained this capability and continue to use it for their premium brands. The mosto is transferred to large fermentation vats. Yeast is added to accelerate the process of converting the sugars into alcohol. Each company keeps their own yeast a tight secret.

' Most manufactures will ferment their product in large stainless steel tanks. However, El Tesoro Distillery (Los Altos area) uses big wooden barrels. The sugar level of the mosto is monitored during fermentation.



Once fermentation is complete, the mosto may be left to settle for about 12 hours to richen. The fermentation yields a liquid with about 5-7% alcohol. This product is then normally double-distilled in traditional copper pot stills (called alambiques) or by use of modern stainless-steel column stills to increase its alcohol percentage and separate the desired volatile substances from the undesired ones.

Many manufacturers claim "all-natural" fermentation. The San Nicolas Distillery in Arandas uses natural yeast from one part of the agave plant to manufacture their Espolon brand, and yeast from another part of the agave plant for their Corazon Tequila. I observed another interesting variation at the old Siete Leguas factory in Atotonilco. They transfer the mosto along with the tahona-crushed agave fibers to their fermentation tanks. Siete Leguas believes keeping the fibers with the mosto during fermentation and the first distillation enhances the agave flavor. Siete Leguas blends tequila produced at their old factory with tequila produced at their new factory to achieve the desired flavor profile.

The times required for each distillation vary between manufacturers. In one factory the first distillation takes about 1½ to 2 hours and produces about 20% alcohol content. The second distillation takes 3 to 4 hours and yields about 55% alcohol content. In another factory the first distillation takes 3 hours yielding 20-25% alcohol and the second distillation takes 6 hours to achieve a 55% alcohol content.



During distillation, the product develops into three components: the "cabeza", or head, has more alcohol and unwanted aldehydes (undesirable ethanoUmethanol), so it is discarded. , vThe middle section is the "el corazon", the heart, which is the best part and saved for 'production. The end is the "coins", or tails, which is sometimes recycled into the next distillation to make it more robust, or may also be discarded. The residue, or dregs ("vinazas") is discarded.

Upon completion of the first distillation, the product is called "Ordinario". After the second distillation, the product is called "Tequila". At this point the tequila normally has an alcohol content of 55% or higher. 55% alcohol is the equivalent of 110 proof. The product is then diluted with distilled water to reach the desired level of alcohol (normally 38 - 40%). Many manufactures use 38% alcohol content for tequila being sold in Mexico, and 40 % for tequila being exported to the United States (as this is believed to be preferred by the respective markets).

Occasionally, a manufacturer may use a triple-distillation process. Two examples are Cazadores' Corzo brand and Cofradia's Casa Noble brand. Triple-distillation (or more) does not necessarily result in a superior product compared to other brands made from double-distillation. It is however another variation to the process used by some manufactures to further refine their product.

At this point, the tequila will be bottled as a blanco, silver, plata, etc., or it can be rested (aged) in wooden barrels (to be sold as a reposado, afiejo, or extra aliejo tequila). Here it obtains its color, body, aroma and incomparable taste.

As the tequila is aged in wooden barrels, usually oak, it becomes smoother, with a woody taste and golden color. Aging may disguise the agave flavor and few tequilas are aged longer than three to four years.



Reposado may be rested in barrels or casks as large as 20,000 liters, allowing for richer and more complex flavors. The preferred oak comes from US, France or Canada, and while they are usually white oak, some companies choose to char the wood for a smoky flavor, or use barrels that were previously used to hold a different kind of alcohol ( i.e. whiskey, scotch, or wine in the case of Asombroso). Some reposados can also be aged in new wood barrels to achieve the same wood flavor and smoothness in less time. Afiejos are sometimes rested in barrels that have been previously used to rest reposados. The barrels cannot be more than 600 liters, although most are stored in barrels of about 200 liters. Many of the barrels used are from whiskey or bourbon distilleries in America, France, or Canada (the most popular being Jack Daniels), resulting in the dark color and more complex flavors of the afiejo tequila. Because many people believe after 4 years of aging the tequila is at its best, the afiejo can be removed from the wood barrels and placed in stainless steel tanks to reduce the amount of evaporation that can occur in the barrels. Once the time arrives, it is bottled under strict quality control and supervision of the Mexican Government (NOM), the official Mexican Government norm and it is the Tequila Regulating Council who ratifies this by extending the origin certificate.

