

Chapter 1 : Rahr Corporation | Malt of reputation since

Malting is the process of converting barley or other cereal grains into malt, for use in brewing, distilling, or in foods and takes place in a maltings, sometimes called a malthouse, or a malting floor.

See Article History Malt, grain product that is used in beverages and foods as a basis for fermentation and to add flavour and nutrients. Although any cereal grain may be converted to malt, barley is chiefly used; rye , wheat , rice , and corn are used much less frequently. The largest quantities of malt are used in the brewing of beer , and the flavour of beer is predominantly the result of the malt from which it was made. From 11 to 22 kg 25 to 50 pounds of malt are used to make a barrel 31 U. The next most important use of malt is to make distilled alcohol for whiskey and other beverages. Malt extracts are also used for flavour, enzyme activity, and starch content in such food products as flour , malt vinegar, breakfast cereals, baby foods, confections, and baked goods. The controlled germination of cereal grains that results in malt is initiated by adding moisture and is arrested by removing the moisture before the young plant grows out of its seed covering. The malting process itself consists of three stages: In steeping, the grain is placed in a tank with water and absorbs moisture, awakening the embryo within the kernel. The dampened grain is then allowed to germinate, or sprout, and tiny rootlets grow out from the bottom of the kernel. During germination, enzymes are activated that the embryo plant uses to break down the starch in its kernel and build it into root and stem structures. The germination process requires that cooled and moistened air move through the mass of sprouting grain, which must be gently moved to prevent matting of the rootlets. In modern malting procedures, germination usually takes place in revolving drums or in tanks equipped with agitators. This process has largely replaced floor malting, in which the moistened grain was spread on concrete floors and turned by shoveling. When the desired biological modification in the grain has been attained, the germination process is stopped by kilning. In this stage, the germinated grain, called green malt, is dried by currents of heated air entering through perforations in the floor of the kiln. The malt intended for Scotch whisky is dried over a fire to which peat is added, its smoke being absorbed by the malt. The enzymes produced within the barleycorn during germination break down the starch stored in the seed kernel to simpler carbohydrates, chiefly malt sugar maltose. Other enzymes are also produced in the grain that can break down proteins to simpler nitrogenous compounds. The maltose is subsequently fermented by yeast, resulting in the alcohol and carbon dioxide that give beer its distinctive qualities. Malt extract is produced by mashing malt, removing the solids, and then using an evaporator to concentrate the aqueous fraction. The resulting product is a thick syrup containing sugars, vitamins, and minerals. Specialized malts for enhancing the colour and flavour of beers are produced by controlled heating of wetted or dry malt e. Learn More in these related Britannica articles:

Chapter 2 : Malt Types and Usages - How to Brew

Origin Malts strives to redefine what is possible in a globally connected, locally driven supply chain.

The name comes from the fact that pale lagers are the most common style of beer and this is the malt type most commonly used to produce them. Because it tends to be the most available malt, it is used for nearly every other style also. Logically, if you intend to brew a pale lager, you would be best served by using lager malt. After germination, lager malt is carefully heated in a kiln to 90F for the first day, withered at F for hours and then cured at F for hours depending on the maltster. This produces a malt with fine mild flavor and excellent enzyme potential.

Pale Ale Malt 3 L This malt type is kilned at higher temperatures than lager malt, giving a slightly toastier malt flavor well suited to Pale Ales.

Wheat Malt 3 L Wheat has been used for brewing beer nearly as long as barley and has equal diastatic power. Wheat has no outer husk and therefore has fewer tannins than barley. It is generally smaller than barley and contributes more protein to the beer, aiding in head retention. But it is much stickier than barley due to the higher protein content and may cause lautering problems if not given a "Protein Rest" during the mash.

Rye Malt 3 L Malted rye is not common but is gaining in popularity. It is even stickier in the mash than wheat and should be handled accordingly.

Kilned Malts need to be mashed. These malts are commonly produced by increasing the curing temperatures used for base malt production, but can also be produced by toasting finished base malts for a period of time in an oven. Suggested times and temperatures for producing these types of malts at home are given in Chapter 20 - Experiment!

Biscuit Malt 25 L This fully toasted, lightly roasted malt is used to give the beer a bread and biscuits flavor. Gives a deep amber color to the beer.

Victory Malt 25 L This roasted malt is similar in flavor to Biscuit but gives a more nutty taste to the beer. Victory adds orange highlights to the beer color.

Munich Malt 10 L This malt has an amber color and gives a very malty flavor. This malt has enough diastatic power to convert itself but is usually used in conjunction with a base malt for mashing. This malt is used for Oktoberfest-type beers and many others, including pale ales.

Vienna Malt 4 L This malt is lighter and sweeter than Munich malt and is a principal ingredient of Bock beers. Retains enough enzymatic power to convert itself but is often used with a base malt in the mash.

Dextrin Malt 3 L Also known as American Carapils, this malt is used sparingly and contributes little color but enhances the mouthfeel and perceived body of the beer. Dextrin malt has no diastatic power. It must be mashed; if steeped it will contribute a lot of unconverted starch and cause starch haze.

Caramel Malts may be steeped or mashed. Caramel Malts have undergone a special heat "stewing" process after the malting which crystallizes the sugars. These sugars are caramelized into longer chains that are not converted into simple sugars by the enzymes during the mash. This results in a more malty, caramel sweet, fuller tasting beer. These malts are used for almost all ale and higher gravity lager styles.

Caramel 10 10 L This malt adds a light honey-like sweetness and some body to the finished beer.

Caramel 40 40 L The additional color and light caramel sweetness of this malt is perfect for pale ales and amber lagers.

Caramel 60 60 L This is the most commonly used caramel malt, also known as medium crystal. It is well suited for pale ales, English style bitters, porters and stouts. It adds a full caramel taste and body to the beer.

Caramel 80 80 L This malt is used for making reddish colored beers and gives a lightly bittersweet caramel flavor.

Caramel L This malt adds a lot of color and bittersweet caramel flavor. Useful in small amounts to add complexity or in greater amounts for old ales, barleywines and doppelbocks.

Special B L This unique Belgian malt has a roasted nutty-sweet flavor. Larger amounts, more than a half pound in a 5 gallon batch, will lend a plum-like flavor which may be desired in a barleywine in small amounts.

Roasted Malts may be steeped or mashed. These highly roasted malts contribute a coffee or burnt toast flavor to porters and stouts. Obviously these malts should be used in moderation. Some brewers recommend that they be added towards the end of the mash, claiming that this reduces the "acid bite" that these malts can contribute. This practice does seem to produce a smoother beer for people brewing with "soft" or low bicarbonate water.

Chocolate Malt L Used in small amounts for brown ale and extensively in porters and stouts, this malt has a bittersweet chocolate flavor, pleasant roast character and contributes a deep ruby black color.

Black Patent Malt L This is the blackest of the black. It must be used sparingly, generally less than a half pound per 5 gallons. It contributes a roasted

charcoal flavor that can actually be quite unpleasant if used in excess. Roast Barley L This is not actually a malt, but highly roasted plain barley. It has a dry, distinct coffee taste and is the signature flavor of Stouts. It has less of a charcoal "bite" to it than does Black Patent. Neither the author, editor, contributors, or publisher assume any responsibility for the use or mis-use of the information contained in this book. It is the responsibility of the reader to exercise good judgement and to observe all local laws and ordinances regarding the production and consumption of alcoholic beverages. Copyright by John Palmer.

Chapter 3 : Briess Malt & Ingredients Co.: Superior malts & ingredients for the food and brewing industries

Give the malt a little more heat, and the beers become darker, more the color of root beer. Brown ales "Newcastle Brown is a classic" are the ale variety. In the lagers, the cleaner tasting German dunkels "dark lagers" are the counterparts.

Proximity Malt is a different kind of malt company, chiefly, we commit to providing our customers with quality service and reliability. Proximity will establish, maintain, and sustain access to local grains for quality malt processing. This is done at a scale that provides consistency, efficiency, and variety in malt sourcing for craft brewers, distillers, and food companies. Proximity shortens supply chains from those existing today. In order to provide our customers a consistent, regional, supply of specialty malts and roasted grains. The San Luis Valley in Colorado has been traditionally growing barley for more than 50 years. Our new malthouse, in Monte Vista was chosen to take advantage of this consistent malting barley supply. We are using that advantage to provide locally grown and malted grains to the expanding malt markets in the Southwest. Delaware, and its neighboring states, particularly Maryland, Virginia, and Pennsylvania, are known for their consistent barley production. The Mid-Atlantic region is the largest winter barley-growing region in North America. Our plant in Laurel will capitalize on this winter malting barley production. Each site is designed for consistency, flexibility and efficiency. This allows us to effectively collaborate with and better serve our customers. Malt Products Proximity Malt commits to a full range of products , from base malts to roasted malts. We know our customer is looking for consistency. Our processes are designed to produce consistent product everyday. Our malt is ready for shipment in bulk, totes, or bags. Our commitment is to ensure the security of customers raw material needs. We do this through a consistent barley supply and engineering our processes to reduce natural variation. This ensures production of the flavors and colors that satisfy our customers demands.

Chapter 4 : Briess Processes - The Malting Process

The principles of malt evaluation are explained, and the effect of altering malting conditions summarized. This book should be of direct value to maltsters, brewers, distillers, foodstuff manufacturers and other malt users as well as being of more general interest to food scientists and technologists in academic research institutions.

Malting Process What is Malt? These enzymes produce fermentable sugars to supplement the other key nutrients for yeast growth that malt provides. These include amino acids, vitamins, and minerals. The Malting Process consists of 4 stages which are steeping, germination, kilning and roasting. This is achieved through successive immersions and air rests over a period of days. During this process, the grain begins to germinate and therefore produces heat and carbon dioxide. In the immersion cycles, the grain is immersed in water and air is blown through the wet grain to keep the level of dissolved oxygen in the water high enough so as to not stifle the developing embryos. In the air rests, the carbon dioxide is removed. Due to the varying degree of moisture tolerance of the different grains, steeping is a crucial step in the malting process. When the steeping process is complete, all of the grain should be evenly hydrated and show signs of germination. Germination continues for a further days depending on the product type being made. The germinating grain bed is kept at temperature and oxygenated by providing a constant flow of humidified air through the bed at specific temperatures. The grain is turned regularly to prevent rootlets matting and to maintain a loosely packed grain bed. The maltster manipulates the germination conditions to vary the type of malt being manufactured. Large volumes of hot air are blown through the grain bed. By varying air flows and kiln temperatures, malts of different colors can be produced with varying flavor profiles. At the end of kilning the malt is cooled and the tiny rootlets removed before analysis and storage. The final malt is analyzed extensively according to malt type and customer profile. The malt may be dispatched in bags, in containers or in bulk.

Roasting Roasting is done in 4 distinct stages: The grain is transferred to germination which lasts for around 4 days in Wanderhaufen style streets. This is a semi continuous moving batch germination process. Once germination is complete, the green malt is then transferred to the roasting drum. The roasting takes place in two roasting drums. Our roasters take a batch size of 2. The malt is analyzed before storage and thereafter awaits dispatch to our customers.

Chapter 5 : Malting process - Wikipedia

Malt and Grain; Malt and Grain. Bairds Malt. Best Malz Malt. Briess Malt. Canada Malting. Castle Malting. Gambrinus Malting. Grain Millers. Great Western Malting.

Malted barley, or malt, is the basic ingredient used in the production of beer, providing complex carbohydrates and sugars necessary for fermentation, as well as contributing flavors and colors that are uniquely characteristic of beer. Those same benefits are equally effective in the production of yeast-fermented dough systems, baked goods, bars, cereal, granola, prepared foods, snack foods and other finished food products. And because malt is made from whole grain and minimally processed, it is an all natural ingredient that helps achieve product claims like natural, healthy, Kosher and non-GMO. Making malt requires only a cereal grain, usually barley, and water and a three-step process: Steeping The basic malting process, although more of an exact science today than when man first dipped baskets of grain into open wells in Mesopotamia 5, years ago to prepare it for brewing, remains a three-step process: During steeping water is absorbed by the raw barley kernel and germination begins. Steeping starts with raw barley that has been sorted and cleaned, then transferred into steep tanks and covered with water. The absorbed water activates naturally existing enzymes and stimulates the embryo to develop new enzymes. Steeping is complete when the barley has reached a sufficient moisture level to allow uniform breakdown of the starches and proteins. One visual indicator that the maltster uses to determine the completion of steeping is to count the percentage of kernels that show "chit". Raw barley that has been properly steeped is referred to as "chitted" barley", the "chit" being the start of the rootlets that are now visibly emerging from the embryo of the kernel. Germination In a process called "steep out," the chitted barley is transferred from the steep tank to the germination compartment. Germination, which began in the steep tank, continues in the compartment where the barley kernel undergoes modification. Good modification requires the barley to remain in the compartment for days. Germination is controlled by drawing temperature-adjusted, humidified air through the bed. Turners keep the bed from compacting and rootlets from growing together, or felting. Drying Germination is halted by drying. If germination continued, the kernel would continue to grow and all of the starch reserves needed by the brewer would be used by the growing plant. Base or standard malts are kiln dried. This develops flavors ranging from very light malty to subtle malty. Specialty malts are dried in a kiln at higher temperatures for longer periods of time, roasted, or both. Varying the moisture level and time and temperature of drying develops the flavor and color characteristics of each specialty malt.

Chapter 6 : Malt | Definition of Malt by Merriam-Webster

This book gives a comprehensive overview of malts and malt competitors, how they are made and evaluated. Summary-outlines of the malting process and malt-using processes are followed by consideration of the structures, germinative physiology and biochemistry of cereal grains.

High temperatures or over-drying will damage or kill the barley embryo and the grain will not germinate after steeping. The dry barley can safely be stored for up to 18 months without fungal growth or loss of grain vigour. Cleaning[edit] The aim of barley cleaning is to remove foreign matter straw, chaff, dust and thin corns found in the incoming grain, leaving only the grain most likely to produce a good malt. Magnets are used to remove metals from the grain, in turn reducing the possibility of sparks, which could lead to a dust explosion. Rotating and shaking sieves are used to remove unwanted foreign matter either larger straw and un-threshed ears or smaller sand and thin corns than the normal barley grain. During the sieving process an aspiration system removes the dust and chaff. De-stoners or shaking screens are used to separate small stones from the barley. The stones, which are more dense than the barley, move out the top of the machine and the cleaned barley exits at the bottom. Half corn separators may be used to remove broken kernels. Half kernels need to be removed as only the one half will germinate and produce enzymes. At the end of the cleaning process the grain is weighed to determine the cleaning losses the difference between the weight of grain received and the weight of the grain after cleaning and it is transferred to a silo for storage. The barley must be safely stored to maintain the grain vigour for germination. Storage at a malt house is normally in vertical silos made of steel or concrete for ease of use; but may be in flat stores when large amounts of grain is to be stored. The grain is stored in a manner that protects it from moisture and pests. A typical silo will store between 5, and 20, tons of clean dry barley ready for malting. During storage the temperature of the silo is measured and monitored over time as a temperature increase can indicate insect activity. Silos are normally fitted with a system for rotating grain from one silo to another to break-up hot spots within the grain. A fumigation system can be used to administer a fumigant normally phosphine to the silo. Wet process[edit] The wet process begins with steeping to get germination started and ends with kilning which removes the moisture and produces a stable final product. In a modern pneumatic malt house, the grain is alternatively submerged wet stand and then drained an air rest for two or three cycles to achieve the target grain moisture content and chit count. Wet Stand When the grain is immersed in water known as a wet stand , air is bubbled through the slurry of water and grain periodically. The aim of this aeration [2] is to keep the process aerobic to maximize barley growth. Other advantages of the rousing are to get good mixing, to loosen dirt and to even out hydrostatic pressures at the bottom of the steep vessels. At the end of the wet stand the water is drained out and this is the start of the air rest. During the air rest, fans are run to supply fresh oxygen and to remove excess CO₂ produced by grain respiration. The aeration requirements cubic metres per ton per minute are higher in the second and third air rests as the grain metabolic activity is higher. Cast-out may be done as a slurry during a wet stand or as moist grain during an air rest. Germination[edit] The aim of germination is to grow the barley grains. This allows the development of malt enzymes, and these enzymes modify the structure of the barley endosperm by breaking down the cell walls and the protein matrix. Germination produces a large amount of heat; if safety precautions are not taken the malt will burn. Kilning[edit] Kilning thus reduces the grain moisture content and stops the germination process. During forced drying the relative humidity of the air coming off the bed drops and the maltster is able to use a portion of the warm air as return air. DMS is an off flavour that tastes like sweetcorn in the final beer. The high temperatures of kilning also produce the colour in the malt through the Maillard reaction. Finally the kilned malt is cooled before the kiln is stripped emptied. Deculming[edit] The rootlets of the malt also known as culms are removed from the malt soon after transfer from the kiln. The removed culms are sold or processed as animal feed. Malt cleaning[edit] Finally the malt is cleaned prior to sale using sieves and aspiration to remove the dust, lumps and stones in the malt. Magnets are again used to remove any steel that might damage the mill rollers.

Chapter 7 : Home - Viking Malt

Proximity Malt is a different kind of malt company, chiefly, we commit to providing our customers with quality service and reliability. Proximity will establish, maintain, and sustain access to local grains for quality malt processing.

Malt and Malting Two-row vs. Two types of barley are commonly malted and used to make beer. The two types of barley most commonly used to make beer are referred to as two-row and six-row barley because their seeds grow along a central stem in two and six rows respectively Figure 1. The number of seed rows depends upon the number of fertile flowers present. In the case of two-row barley only two of the six flower clusters are fertile while in the case of six-row barley all six are fertile. The view looking down the axis of the stem or rachis is shown in A. A side view of the rachis is shown in B. Three clusters of flowers develop at each node of the rachis which are offset above solid lines and below dashed lines. In the case of two-row barley, only the central flower at each node is fertile. As a result, one kernel would develop at each node giving the appearance of two rows of kernels when view from above. This is the case is shown in B and is indicated by the shaded kernels in A. In the case of six-row barley, three kernels would develop at each node, thus giving the appearance of six-rows of kernels when viewed from above Lewis and Young, Six-row barley typically grows in relatively warm climates and is the most widely grown type of barley in the U. The kernel size of six-row barley tends to be quite variable whereas two-row kernels are of relatively uniform size. As a result, often times maltsters must separate the six-row barley into different size fractions prior to malting. This extra step is not, however, required during the malting of two-row barley. Another difference between the two varieties is that six-row has greater enzymatic potential than two-row. As a result, six-row can convert more starches to fermentable sugars than two-row. A much greater percentage of relatively inexpensive adjuncts e. Although six-row barley has greater enzymatic power and produces a greater yield per acre than two-row barley there are still some advantages to using two-row. Two-row barley tends to have plumper kernels with thinner husks than six-row. As noted above, six-barley has thicker husks than two-row. Although the greater husk material improves the filter bed for lautering, the greater tannin content can also, if one is not careful, result in an increased astringency in the finished beer. Six row barley has greater protein content than two-row barley. The higher protein content of six-row malt can produce haze problems in the finished beer. Six-row malt is particularly problematic in this regard because it tends to yield worts containing ample quantities of the two major contributors to haze formation i. The use of six-row barley malt along with a fairly high percentage of adjuncts can help reduce both the haze and astringency problems. Not only is six-row barley less expensive per pound than two-row, its use actually requires further cost cutting through the use of relatively high percentages of inexpensive adjuncts. Six-row barley malt is the perfect choice for the American megabreweries. Keep in mind, however, that the megabreweries use far more adjuncts than absolutely necessary; beers produced with relatively large quantities of adjuncts tend to have very little body and lack much in the way of maltiness. The use of two-row malt, however, does not require the coincident use of adjuncts. Such all malt beers tend to be more complex as well as have more body. The disadvantages of both two- and six-row barley can be easily overcome; both can be used to make excellent beers. This can lead to considerable confusion when doing a literature search of malting barley. During the early 20th Century two-row and six-row barley were considered to be two separate species, *Hordeum distichum* and *Hordeum hexastichum* respectively. By the s, six-row barley was classified as *Hordeum vulgare* while two-row remained *Hordeum distichum*. Currently, both two-row and six-row barley are considered the same species and are classified as *Hordeum vulgare* Heisel , personal communication. Note that the method of malting described in this section is that of traditional floor malting. Although it is rarely employed today it does allow one to clearly describe the various steps of the malting process. Germination The primary purpose of malting is to produce the enzymes required for mashing and to make the starches present in the raw barley more accessible to those enzymes. During this time water is absorbed by the grain which promotes germination. The water preferably alkaline water is changed frequently during this time. This is to prevent bacteria present in the barley husk from souring the water by fermenting some of the grain material. Such a reduction in pH

would interfere with the development of the plant embryo. During those periods in which the barley is not submerged i. The germinating grain must be turned and wetted frequently to dissipate the heat produced during germination and to aerate the grain. The shoot that grows beneath the husk is known as the acrospire. The acrospire grows upward from the bottom of kernel along the dorsal-side the side opposite the crease. The endosperm is the non-living part of the kernel in which starches and other food for the embryonic plant reside. Enzymes are produced during germination and growth of acrospire so as to break down starches and proteins of the endosperm into simple sugars and amino acids that nourish the growing plant. Not all of the enzymes important to malting and mashing, however, are created during germination. Beta amylase, for example, is present in raw barley but it is in a bound form and thus, is unable to act on starch material until it is released during germination. The goal of malting is to maximize the production of useful enzymes while halting germination before the embryonic plant consumes too much food material i. Protein modification is one of the most important processes to take place during germination. Starch granules comprising the endosperm are embedded in an insoluble protein-glucan matrix. Unless this matrix is broken down the action of amylase enzymes is blocked. The degree to which the protein-glucan matrix is broken down is referred to as modification. Modification is accompanied by a physical change in the grain. Prior to modification the grain is very hard or steely. After modification the grain becomes soft and friable or mealy. Since the release of enzymes and their action is to provide food for the growing plant, modification mirrors the progress of the acrospire as it grows up the kernel. The longer the acrospire the greater the degree of modification. Of course, some of the starches are consumed by the growing acrospire so modification is, to some extent, at the expense of malt yield. It generally takes days of growth before the acrospire reaches this length Figure 2. The progressive degree of modification which, more or less, corresponds to the growth of the acrospire is indicated by the shading. A, B and C represent the third day, the fifth day and the eighth day of germination respectively DeClerk, A simple method of determining the overall level of modification of a batch of malt is by means of the "sinker" test. In this test 50 kernels of malt are shaken into a pan of water. After 10 minutes the number of horizontally floating kernels is counted; undermodified kernels either sink or float vertically in the water. With good malt, nearly all of the kernels should float with only two or three kernels sinking or floating vertically. During this time enzymes within the grain continue to convert endosperm starches to sugars. However, the lose of some enzymes cannot be avoided. Fortunately, alpha- and beta-amylase survive at least in part. The degree to which enzymes are degraded depends upon the kilning temperature employed. Higher temperatures tend to be more destructive to enzymes. Vienna and Munich malts are kilned at a somewhat higher temperature. These temperatures are not so high as to degrade the enzymes to the extent that these malts cannot be used as the basis of a recipe. The use of Munich and Vienna malt imparts body, sweetness and a slightly reddish hue to the beer. Chocolate malt is kilned at about the same temperature but for less time Roast barley is simply unmalted barley that has been highly roasted. The enzymes in chocolate, black patent and roasted barley have all been destroyed during roasting. These grains are used only to darken and impart a roasted or burnt flavor to the beer. The high temperature roasting degrades the unmodified starches so there is no need for a protein rest. Crystal and Cara-pils dextrin malt are produced in a somewhat different manner in that the malt does not go through the initial drying phase. The malt is heated without ventilation so as to prevent evaporation. During this "stewing" period the relatively high water content of the malt combined with the kiln temperature result in enzymatic reactions taking place within the individual malt kernels that are normally associated with mashing i. This process is incomplete so not all the starches are actually converted to sugars and those sugars that are present tend to be complex and therefore, are not fermentable. After the stewing period the vents are opened and the malt is further roasted. During this process the converted sugars are caramelized and the husks are darkened. Using crystal malt imparts sweetness as well as a reddish hue to the finished beer whereas the use of cara-pils adds body and some residual sweetness without affecting beer color. Protein rest Some brewers employ what is known as a protein rest. Two sets of proteolytic enzymes are active during the protein rest over two different temperature ranges. These enzymes convert medium sized nitrogen-based proteins into amino acids that will later be consumed by the yeast. These enzymes breakdown large proteins into forms which aid head retention and improve clarity. Note that in the past most malt was

under modified. As a result, such malt would be relatively deficient in enzymes and the protein-glucan matrix containing the starches would not have been properly broken down during malting. During the protein rest this matrix is broken down thus making the starches more accessible to the relatively enzyme poor mash. Another result of this, of course, would be additional amino acids for yeast nutrition and improved head retention and clarity. Today, however, most malt has a high degree of modification.

Malting is our expertise, and we are committed to providing you with world-class malts. Since entering the malt business in , we've strengthened our network of global production and sourcing to not only tap the best available malting barley, but also ensure physical supply and competitive pricing for our customers.

History[edit] Samanu decorated with pistachio Malted grains have probably been used as an ingredient of beer since ancient times, for example in Egypt Ancient Egyptian cuisine , Sumer and China. A plate or bowl of Samanu is a traditional component of the Haft sin table symbolising affluence. Traditionally, women take a special party for it during the night, and cook it from late in the evening till the daylight, singing related songs. In Tajikistan and Afghanistan they sing: In modern times, making samanu can be a family gathering. It originally comes from the Great Persian Empire. Today, this product is available in shops from February until Easter. Malting process Barley is spread out on the floor of a malthouse during a traditional malting process Malting is the process of converting barley or other cereal grains into malt, for use in brewing , distilling , or in foods and takes place in a maltings, sometimes called a malthouse, or a malting floor. When ready, the grain is immersed or steeped in water two or three times over two or three days to allow the grain to absorb moisture and to start to sprout. The grain at this point is called "green malt". The green malt is then dried and pre-toasted in an oven or kiln to the desired colour and specification. Smoke, coming from an oasting fireplace via smoke channels is then used to heat the wooden floor and the sprouted grains. A typical floor maltings is a long, single-storey building with a floor that slopes slightly from one end of the building to the other. Floor maltings began to be phased out in the s in favour of "pneumatic plants". Here, large industrial fans are used to blow air through the germinating grain beds and to pass hot air through the malt being kilned. Like floor maltings, these pneumatic plants are batch processes, but of considerably greater size, typically ton batches compared with 20 ton batches for floor malting. As of [update] , the largest malting operation in the world was Malteurop, which operated in 14 countries. This protects the growing acrospire developing plant embryo from damage during malting, which can easily lead to mold growth; it also allows the mash of converted grain to create a filter bed during lautering see brewing. Malts[edit] Diastatic, and nondiastatic[edit] As all grains sprout, natural enzymes within the grain break down the starch the grain is composed of into simpler sugars which taste sweet and are easier for yeast to use as growth food. Malt with active enzymes is called "diastatic malt". Malt with inactive enzymes is called "nondiastatic malt". The enzymes are deactivated by heating the malt. Base and specialty[edit] Malt is often divided into two categories by brewers: Specialty caramel or crystal malts have been subjected to heat treatment to convert their starches to sugars nonenzymatically. Two-row and six-row[edit] In addition, malts are distinguished by the two major cultivar types of barley used for malting, two-row and six-row. Children were given cod liver oil for the same reason but it proved so unpalatable that it was combined with extract of malt to produce "Malt and Cod-Liver Oil. Malt extract production[edit] Malt extract is frequently used in the brewing of beer. Its production begins by germinating barley grain in a process known as malting, immersing barley in water to encourage the grain to sprout, then drying the barley to halt the progress when the sprouting begins. The drying step stops the sprouting, but the enzymes remain active due to the low temperatures used in base malt production. The liquid produced from this, wort , is then concentrated by using heat or a vacuum procedure to evaporate water [19] from the mixture. The concentrated wort is called malt extract. Liquid malt extract LME is a thick syrup and is used for a variety of purposes, such as baking and brewing. It is also sold in jars as a consumer product. Also, it requires one fewer processing step, so it is appealing to those favoring the purest form of product available. However, it is very sticky and, therefore, messier to work with and has a shorter shelf life, and some feel the results are just as good with DME. A new encapsulating technology permits the production of malt granules. Malt granules are the dried liquid extract from malt used in the brewing or distilling process. The United States Agricultural Research Service scientists are interested in specialized enzymes called serine-class proteases [25] that digest beta-amylases, which convert carbohydrates into "simple sugars" during the sprouting process.

Chapter 9 : Origin Malts | Art of Growing and Malting Barley in the Midwest

Brewing Grain, Malt, and Barley. We carry a wide variety of brewing grains, malt, and barley to accommodate almost any homebrew recipe! From your standard 2-row base malts and crystal malts, to something more exotic like our cherrywood smoked malt; if it goes in beer, you'll find it here!