What is dry kiln utilization? How important is it? Dry kiln utilization is "uptime," the actual hours that the kiln is operating and drying lumber. The importance of achieving and maintaining optimum utilization cannot be overstated. When utilization goes up, production goes up, costs go down.

The drying operation runs 24 hours a day, 7 days a week. Any hours that are lost cannot be made up. In most cases the other areas and departments of the manufacturing process have the luxury of adding hours to the shifts or scheduling production on weekends to make up for hours lost due to breakdowns or various reasons. Or, they might just want to increase production to take advantage of market conditions.

Generally when we start to fall behind due to any number of reasons, increased sawmill production, a change in the resource (density-specific gravity) due to a regional change in harvesting, climatic changes, extremely cold weather or any numerous other reasons, everyone becomes an expert. Everyone has a solution to your problem. It's a simple, all you have to do is dry faster. Has anyone ever not heard of this statement? Now taken at face value, this sounds logical and seems to make sense. After all, if you dry faster, you should be able to get more volume through your kilns. Right?

I would like to share an experience with you. Back in the early 90s; I took a position with a large fir and hemlock dimension producer. The first day on the job I met with the Division Manager. He had outlined some goals for the future. Included in these goals were drying times. He wanted to know if I thought it was possible to lower their average drying time by 25%. At that time, their average for hemlock was 50 hours plus, and Douglas-fir was 37 hours. The goal was 40 hours for hemlock, and 30 hours for Douglas-fir. My response was, "not having a chance to evaluate the equipment or the flow of the operation, I honestly didn't know." If we were within the limitation of the equipment we could start with working towards those goals. Then I asked the question, "Why do you want to dry faster?" The answer was obvious, "we want to get more lumber through our kilns without having to add capacity." This seemed logical and reasonable.

Armed with a set of goals and expectation, it was time to go to work. First on the list was an evaluation of the equipment. Being sure that everything was in good state of repair and operating within the manufacturer's specifications. Then came the time consuming part. Going through piles of files of drying histories, by kiln and product. During this process I discovered that the dry kiln utilization was 73%.

At the next staff meeting I again asked the question, "Why do you want to dry faster?" The response was immediate and obvious. To get more lumber through the kilns. I said I fully understood the objective, but why do you need to dry faster to obtain it? At this point I could tell that the manager was becoming frustrated with my questions and starting to lose patience. My next statement was, are you aware that your dry kiln utilization is only 73%? His response, was no, what should it be? I proceeded to run myself out on a limb.
with a goal of 94% to 96%. After my response, everyone at the meeting questioned my sanity for setting the bar at a level they perceived to be out of reach.

Within three weeks we had achieved and maintained 95% utilization at the dry kilns. The production through the kilns increase by over 20%. At the next cost statement review meeting, due to the increase in production, the drying costs had decreased substantially. We were almost within our planned budget. At this point in time my sanity still wasn’t confirmed, but at least it was less questionable. Maybe there were methods to my madness.

Now, back to the records and history files. As everyone who has ever operated a bank of dry kilns knows, even though they appear identical in construction and design, you always have a couple of hot rods and a couple of dogs. The kilns at this site were no exception. There were kilns built by three different manufacturers. There were differences in heating capacity and air velocity. Going back through the history files we built profiles of each kiln and how they performed on the different products. Now, with a little insight into the personality and attitudes of these kilns, it was obvious that there was opportunity to be gained by scheduling the flow of lumber through the kilns based on consistency and performance by product whenever possible.

Now we had a better sense of consistency and predictability. So, the challenge was to come up with a method to schedule lumber through the kilns maintaining maximum utilization, but, at the same time taking advantage of our performance by product data.

At the end of the first full day of the sawmill cut, you should have enough information to schedule the entire current cutting schedule through your kilns. The sawmill production or sorter report is your most valuable tool to achieve this. This report generally contains the total volume sawn, plus a breakdown by product, both in volume and percent of the total cut. If the days total production is consistent with the sawmill’s average, take that number times the days scheduled for that particular cut to get an approximate volume for the entire cut. Using the percentages from the sorter report will give you the approximate total volume of each product to be dried from this particular cut. Knowing the capacity of your kilns, breakdown these volumes into kiln charges. Now you should know two things, the number of charges by product to be dried, plus the rate of accumulation. At this point you can literally create a loading schedule for the remainder of the sawmill cutting schedule. Taking advantage of your kiln profiles and directing the products to the kilns that perform the best with these products for maximum positive results.

Once you have used this method of scheduling and become comfortable with it, you will truly be amazed at how accurate you can become in predicting when the last charge will be dry. With everything running fairly consistent and no major problems, mechanical or operational, you can actually be within a mere matter of hours of your prediction.

Keep in mind the importance of reviewing the sawmill production report daily. If there is any significant increase or decrease in production you might have to make adjustments to your loading schedule. You have worked hard at getting your utilization to its maximum level. The last thing you want to do now is lose hours unloading and reloading a kiln because the next charge wasn’t complete.

Now that we had achieved and maintained our utilization to its maximum, and implemented a plan to match product and performance, another positive was realized. The mean average of our drying times decreased. We had actually met our goal of increasing our production through the kilns by 25%.
This should be the end of this story. But, I am sure you are all aware of how crafty those sawmill guys are. They never worry about the mule, the just keep loading the wagon. Since we were drying more, they came up with methods and ideas to produce more. Now was the time to begin to evaluate and modify our drying schedules. Slowly, but with persistence and determination, we redesigned our drying schedules. Eventually we met or exceeded the original goals that had been proposed to us.

Somewhere in all of this there is a lesson to be learned. All of the positive results and success we were able to achieve, wouldn't have been possible without achieving and maintaining maximum utilization. Unless you are at maximum utilization, drying faster probably will not give you very positive results. You very well may find yourself in the hurry up and stop mode. You will feel like the guy in the cartoon. He has a bewildered look on his face, and the caption reads, "The hurrier I go, the behinder I get."

Let's take a look at some common reasons and possible solutions for lost utilization.

**Number 1. No Room to Pull Kiln:** The dry end tracks are full, and the dry storage area ahead of the planer is full. You have two options: (a) leave the lumber in the kiln until the planer makes room; (b) move the lumber from the tracks on the dry end of the kiln. Even if you must take it outside into the yard. In times of good weather, this is a fairly simple solution. During wet weather have tarps or plastic sheeting on hand to cover it with. As soon as space becomes available, get it back inside. In my book you really only have one option. Number 1 is not an option. This option creates double jeopardy. The lumber sitting inside of the kiln, even though it is shut off continues to dry, possibly to the point of being overdried. There is still a lot of residual heat present. Now, not only are you in danger of degrade, but you are losing valuable hours of drying time. These are hours that once they are lost, you can never make them up or get them back.

**Number 2. Waiting on Lumber:** Unless your green tracks and green yard are empty, downtime for this reason is unacceptable. Finish off the charge with the most compatible alternative product you have in your green area. Hopefully you are aware of this before the kiln is unloaded. However, if you truly are ahead of production, take advantage of this time for preventative maintenance, fan deck inspection or house keeping.

**Number 3. Kiln Shut Down, No One On Duty:** Once again we are in a situation of double jeopardy. Losing drying time and risking the possibility of our lumber becoming too dry sitting in a hot kiln. If this is something that happens with any sense of regularity, it might be time to add manpower to your drying operation. Evaluate what the lost production and potential degrade is costing. You may very well discover that by adding another body to your crew, you can actually lower your operating costs.

These were three of the most common reasons for lost utilization. These type of situations can cost any operation thousands of dollars a year. In the case of a large volume producer the overall impact can be in the hundreds or thousands of dollars per year. Operations that don’t track and record every reason for downtime will never have a chance of achieving maximum utilization. And thus, they will never know or realize their full potential.