

Physical properties of the 520 million year old, loosely consolidated sandstone deposit are its cleanliness, purity, unique roundness and resistance to crushing which make the sand well suited for fracturing oil and gas reservoirs. The Jordan sandstone was formed on the beaches of an ancient Cambrian sea from quartz grains which were freed by the erosion of the granite in the Canadian shield. It is found only in the Hollandale embayment, a geological structure located in southern Minnesota and western Wisconsin. The quartz sand was washed, sifted, sorted and resorted by repeated tides and winds over millions of years before it was protected from erosion by younger sediments.

Golf courses are one of the end users of this unique sand product. Several golf courses within a 70 mile radius use Minnesota Frac Sand - 40 and 3560 for construction and topdressing of greens and tees and also for sand traps. Due to its cleanliness and uniform medium particle size, it offers excellent drainage properties. Its light buff color also adds to beautification of the course. Texas A & M University test results on particle size, bulk density, pore space distribution, infiltration rate, moisture retention and pH are available from Minnesota Frac Sand upon request.

Today, Minnesota Frac Sand employs 20 people and can blend different grain sizes to produce materials for various diverse markets..sizes range from #8 through #140 mesh. In addition to golf courses, other markets Minnesota Frac Sand supplies silica sand for include fracturing oil and gas wells, abrasive sands, filter sands, traction sands, glass sand, foundry sand, pesticide carrier sands, masonry sand,

sand used for production of cement, airport sand and filler sand.

Minnesota Frac Sand has many end uses for its silica sand and ships products locally as well as to the west coast and central Canada by truck and rail. Products are available in bulk or bag form. New markets are continually being looked at which would benefit from this basic mineral which is low cost, inert and consistent.

WHAT IS CYLINDER GRINDING? (OR FLAT GRINDING?)

by ARNIE BODHAINE
DWAN AND HYLAND GOLF COURSES

Cylinder grinding is grinding a mower reel while it is rotating in one direction and the grinding stone is turning in the opposite direction. The cutting stone moves back and forth automatically. This machine is also available without the automatic back and forth movement. On that machine, the cutting stone is moved back and forth manually. I prefer the "automatic" because the stone keeps the back and forth movement speed exactly the same at all times. There is less chance of the stone going slower or stopping and cutting a low spot or burning the fly knife. You end up with a perfect cylinder because all fly knives are ground at the same time with the same stone to fly knife adjustment.

With a normally worn reel, less metal is removed so there is a longer reel life because all you have to do is true up the reel. The bedknife grind is quite critical. If you get a good bedknife grind, no

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MERRY CHRISTMAS AND A HAPPY NEW YEAR

from the **KROMER CO**

MOUND, MINNESOTA
TELEPHONE 612-472-4167

lapping in is necessary and more reel life and bedknife life is saved.

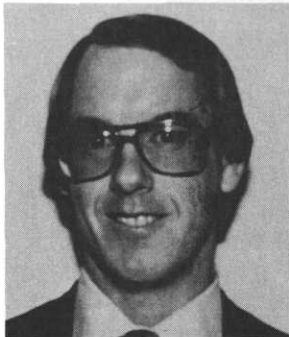
It has been our experience that less mower adjustment throughout the season is necessary.

The time saved in grinding and lapping is a plus. The old method of sitting up and grinding used to take us 1 1/2 hours per unit. Cylinder grinding takes about fifteen minutes per unit.

At Dwan we do the grinding for the rest of the City of Bloomington. This is a total of 100 reels per winter season. In man hours, this represents a sizeable dollar savings. The machine is expensive but so is labor. We estimate the machine will pay for itself in three years.

We have had this machine one and one-half years. However, we kept our line grind machine when we bought the cylinder grind machine just in case it didn't work out. Well, it is still sitting in the corner - not used once. We haven't found one reel that we could not grind with the cyl grinder.

EDITOR'S CORNER



by DOUG MAHAL
CHAIRMAN
EDITORIAL COMMITTEE

I trust everyone had an enjoyable Thanksgiving holiday. After a rigorous summer and fall schedule, it's a treat to spend some relaxed time with family and friends. As the season on the golf course ends, that season in the office begins. It's time to catch up on our records, start machinery repair, start planning for next season and blow the dust off the ice fishing house.

It's also time for me to evaluate the HOLE NOTES quality and content for the past year. It was my goal to continue the format started by Boots Fuller in 1983 with a strong emphasis on receiving newsletter material from members we don't hear from very often. I felt reasonably successful in that endeavor and I'd like to thank all those who did contribute their thoughts and ideas from which all of us were able to benefit. I know as well as anyone how difficult it is to find time in mid-season to sit down and write an article. So, for those who did, your efforts are appreciated.

A big thanks to Long Lake Ford for sponsoring another great November meeting. Members we haven't heard from for many months always come out of the wood work to enjoy this one. If you missed it at the meeting, take a look at Ford's new 1900 series tractor. It's a beauty!

Now that the '84 golf season is over, it may become increasingly difficult to remain motivated for the next three or four months. In those spare moments this winter I might suggest reading a book on some aspect of your course operation in which you would like a little more information. Or perhaps one could catch up on all those trade journals that have been stacked in the corner for a rainy day. A lot of useful information is probably sitting in your office. One need only find it and read it.

It has been a pleasure to serve on the Board of Governors this past year and a real experience to serve on the Editorial Committee. I hope the HOLE NOTES have met with your satisfaction and if not, please send your comments and suggestions. Have a Joyous and Blessed Holiday Season.

STUDENT AVAILABLE

Student at Iowa State majoring in Horticulture/Turfgrass Management-Science is interested in golf course work. He would like a summer internship that could work into a full time job after college in the Twin City area. He has had on-course experience. Contact Paul Johnson, Birch 3279 Stevenson, Iowa State Univ., Ames, IA 50013.