

Cat® Grade Control Slope Assist

PRODUCTION STUDY



PRODUCTION STUDY - DESCRIPTION

Cat® Slope Assist is a machine integrated system that provides slope/angular guidance to the cutting edge for both blade slope and mainfall applications without requiring any off-board infrastructure. This valuable technology feature is available on a growing range of Cat dozer models.

A production study was set up to compare the relative performance of manual grading vs. a tractor equipped with Slope Assist. The test was performed at the Caterpillar Proving Grounds near Peoria, Illinois. A 200-foot sand strip was graded flat, and then a second dozer was used to pile sand at 70, 100 and 130 feet prior to each run. The task put before the operators was to grade the entire length of the strip smooth again, similar to what customers would do when spreading truck dumps.

Three operators participated: Dan, an expert operator from Caterpillar's product development team; Colby, a project manager with a major construction company who has moderate tractor operating experience; and Luke, a Caterpillar tractor design engineer who also has moderate tractor operating experience.

Results were measured in three areas: quality of graded surface, time required to grade the sand strip, and operator effort required. Testing was conducted using manual grading, and with the Slope Assist feature activated. The surface finish measurement was taken with a laser receiver/grade rod.



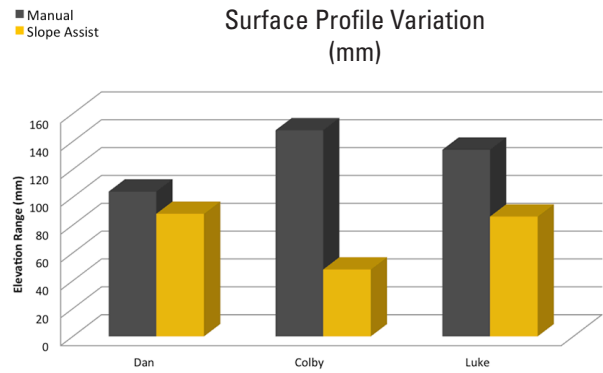
Operators started on a sand strip with three piles of sand to spread, simulating a truck dump application.



Slope Assist helped make quick work of building a road with a 3 percent crown.

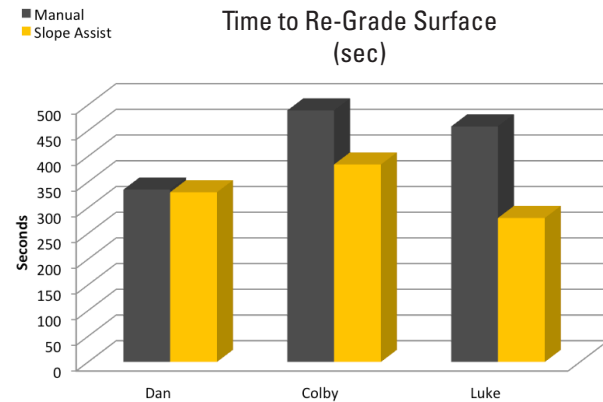
GRADED SURFACE QUALITY

The use of Slope Assist even helped expert operator, Dan, achieve a 15 percent reduction in surface variation. The advantage was even more dramatic for the less experienced operators, ranging from 36 to 68 percent improvement in smoothness with Slope Assist. Smoothness was measured in millimeters of variation in surface finish, as measured with a laser receiver and a grade rod.



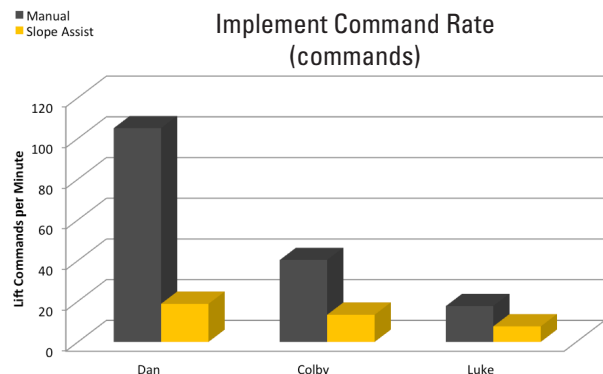
TIME TO RE-GRADE STRIP

Expert operator, Dan, came close to matching the Slope Assist time while operating manually. He did, however, comment that it would be very difficult to maintain that speed through the course of a full work day. Colby and Luke got a lot more work done with Slope Assist, taking 21 - 39 percent less time to complete the task with the help of Slope Assist. Doing the job in less time means customers get more work done per unit of fuel, save wear and tear on machinery and can get to the next job sooner.



OPERATOR EFFORT

All three operators experienced a significant reduction in effort required, 57 - 82 percent fewer operator inputs, when using Slope Assist. Once again, our expert operator stressed that the amount of effort required to manually match the grade quality achieved with Slope Assist would not be practical through the course of a full work day.



CONCLUSION

In this test, Slope Assist demonstrated several benefits:

- Better finish grade quality
- Job completed in less time
- Significantly reduced operator effort

Experienced operators make a tremendous contribution to the overall productivity of a job site. Slope Assist technology helps customers by helping to close the skills gap between new and experienced operators. Slope Assist is easy to use - many times there is no need to touch the joystick once the dozer is on grade. This helps to reduce fatigue and increase overall productivity. Experienced operators are able to work more productively over a longer period of time, and less experienced operators are able to achieve better quality results in less time.

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